the OIL AND GAS JOURNAL

MAY 16 1940

INTERNATIONAL PETROLEUM EXPOSITION NUMBER . . .

• Featuring
• Directory of Exhibits
• And Exhibitors . . .

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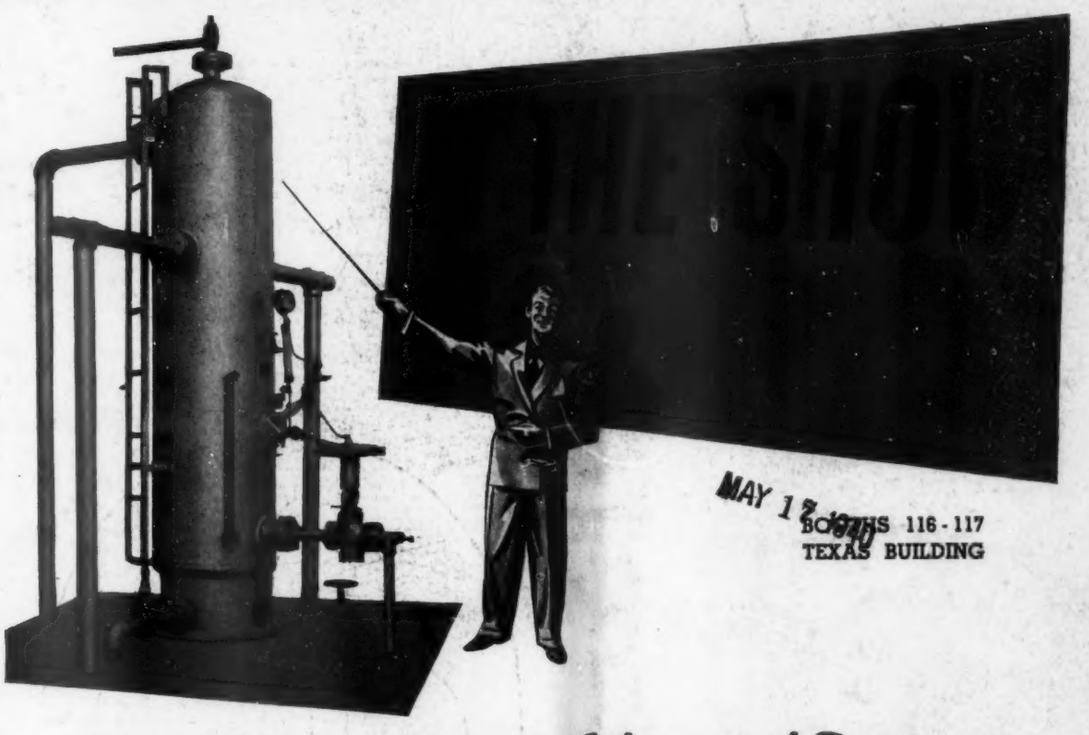

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If you are not acquainted with the advanced features of the MALONEY Separator, the Petroleum Exposition will offer you an excellent opportunity to form your own estimate of their value. Our low and high-pressure separators will be on display at our Booths 116 and 117, Texas Building. Stop and see us and let us point out and explain these new, valuable features of separator design.

Tanks and Walkways. Our representatives will also be prepared to furnish any information on our efficient MALONEY Bolted Steel Tanks — the pioneers in their field — and on MALONEY cantilever-type sectional steel Stairways and Walkways. These products are offered either painted—after thorough cleansing—with our special Kromic Red Oxide Primer and heavy Aluminum finish coat, or Double-Hot-Dip galvanized.

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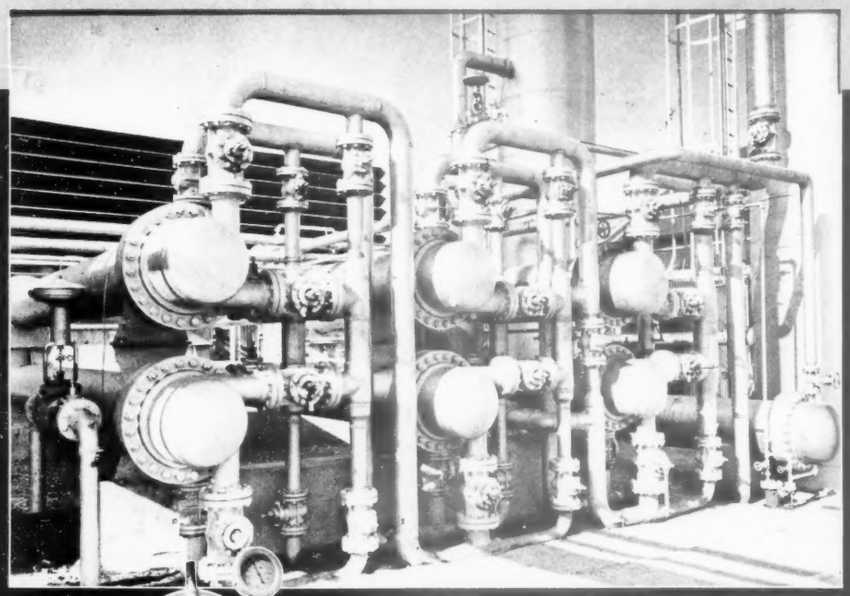
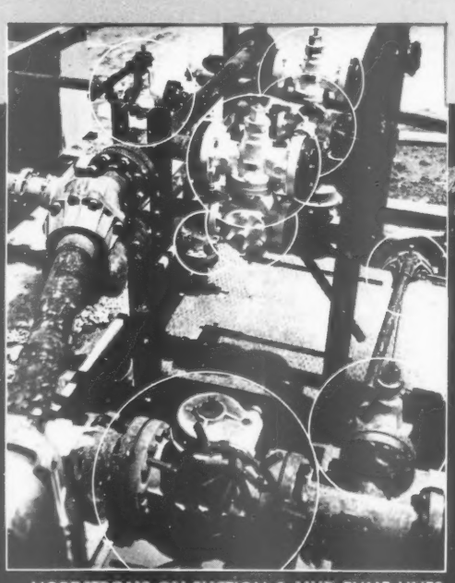
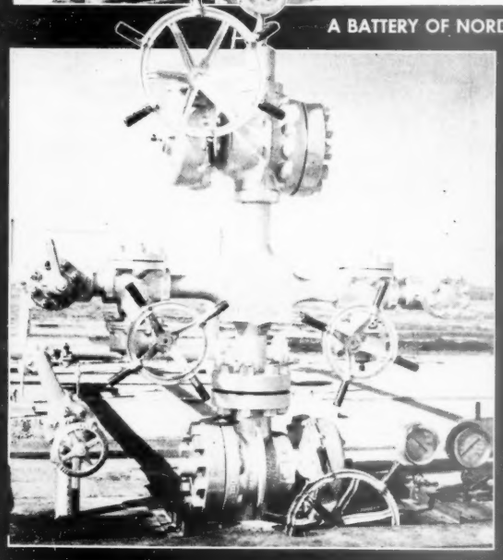


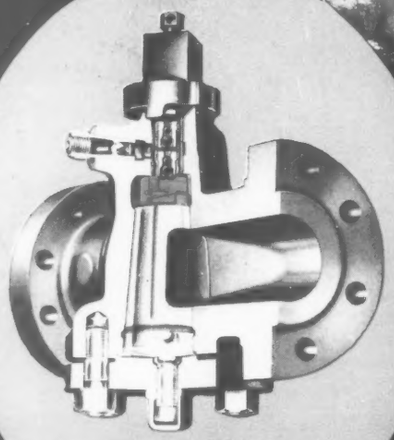
A BATTERY OF NORDSTROM VALVES ON HEAT EXCHANGER



NORDSTROMS ON SUCTION & MUD PUMP LINES
REMOTE CONTROL VALVES ON GAS LINE



HYPRESEAL VALVES ON CHRISTMAS TREE



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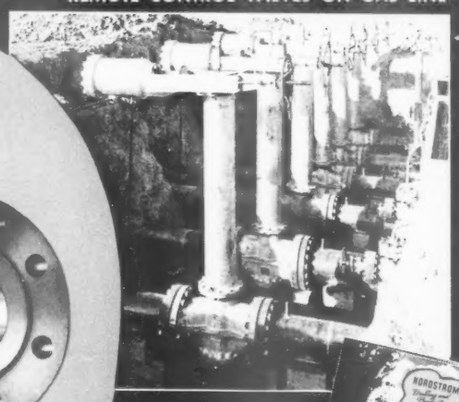

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Science Wahr

The Oil and Gas Journal

PUBLISHED WEEKLY BY THE PETROLEUM PUBLISHING COMPANY AT TULSA, OKLAHOMA

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SUBSCRIPTIONS: United States, 1 year, $6.00; 6 months, $3.00. Elsewhere, 1 year, $7.00; 6 months, $3.50. SINGLE COPIES: 20 cents each. Back copies, when over a year old, 50 cents. CHANGES OF ADDRESS reaching the Tulsa office of the Journal by Saturday take effect with the following issue.

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The Importance of an Adequate *Safety Factor** For Your Wire Rope

**The Safety Factor of a rope is the number of times the rope is stronger than the load.*

Engineers explain it as "the ratio between the rated breaking strength of the rope and the load applied to the rope."

A wire rope operated with an inadequate Safety Factor is like a small man lifting a very heavy load. He may do it successfully for a period of time—but eventually he'll strain a muscle or receive a permanent injury which may shelve him for life. That kind of operation is costly. Make sure you have an adequate SAFETY FACTOR for ropes on all your loads.

HOW TO FIGURE: If a crane (having a single part line) is equipped with a rope having a breaking strength of 12 tons, and is required to lift a load weighing two tons, the Safety Factor of the rope is 6—adequate in this case (see Illustration and Table).

If the rope were required to handle a 3-ton load the Safety Factor would then be only 4—too low for safe, economical operation (see Illustration and Table).

THE VALUE OF AN ADEQUATE SAFETY FACTOR—

By allowing an adequate Safety Factor for all ropes, safe operation of your equipment is assured, longer, lower cost service is obtained from the rope. Here's why:

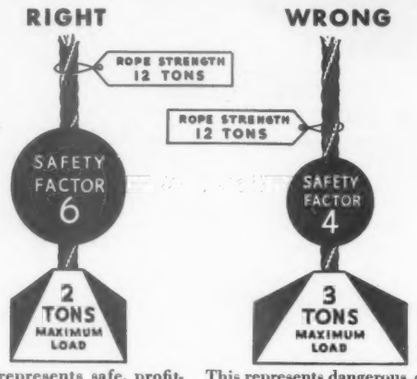
1. Overloading is prevented.
The ability of wire rope to withstand bending or fatigue decreases rapidly when loaded too heavily. This is one of the greatest causes of rope failure.

2. Service life is increased.
With a high factor of safety the pressure per square inch between the rope and sheave or drum (or other object along the path of rope travel) is less, thereby reducing the rate of wear. A wire rope with a Safety Factor of 6 will last approximately twice as long as the same rope operating with a Safety Factor of 3.

3. Safety in operation is increased.
A high initial safety factor in the rope means that after its strength is reduced by wear or broken wires that a greater reserve strength remains. This means greater protection against accidents to men and machinery.

This is NO. 4 IN A SERIES *of informative articles for wire rope users prepared by the Macwhyte Wire Rope Company*

AVOID COSTLY AND DANGEROUS OVERLOADING
. . . Make Sure You Have An Ample Safety Factor



This represents safe, profitable practice for a crane rope.

This represents dangerous, costly practice. Safety Factor is too low.

MINIMUM SAFETY FACTORS

Established After Many Years of Experience and Testing

Type of Service		Minimum Safety Factor
Guys—Derricks		5
" —Stacks		3.5
Shovels, Cranes, Excavators		5
Overhead Traveling Cranes		6
Hot Ladle Cranes		8
Electric and Air Hoists		7
Track Ropes		4
Derricks		6
Mine Shafts—Up to 500′ deep		8
	500′ to 1000′ deep	7
	1000′ to 2000′ "	6
	2000′ to 3000′ "	5
	Over 3000′ "	4
Passenger Elevators—		
Car Speeds	250′ per min.	9
	500′ " "	10.25
	800′ " "	11.25
	1000′ " "	11.6
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NO. 4-B

MACWHYTE ENGINEERS are always at your service to recommend the correct ropes for your needs.

Copies of this and previous articles on how to get the most out of your wire rope are available. Send us your name and title on company letterhead and copies will be sent you without obligation.

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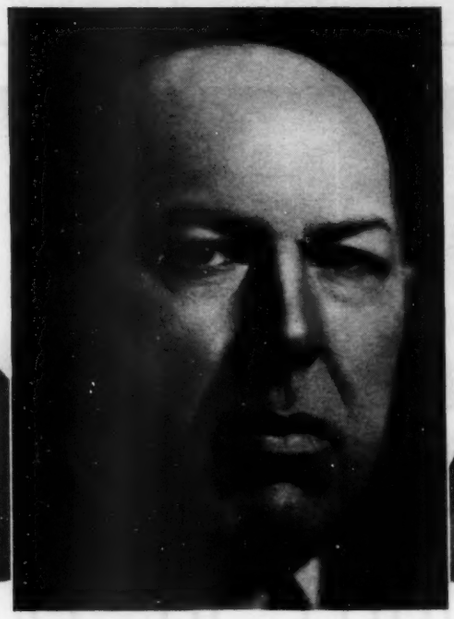
W. M. JEFFERS
President, Union Pacific Railroad Co., who will address exposition visitors Saturday



W. G. SKELLY
President of the International Petroleum Expcsition, who will set into motion the machinery for opening the exposition

B. C. HEACOCK
President, Caterpillar Tractor Co., who will participate in opening ceremonies

Exposition Opens May 18

Two distinguished guests to take part in lid-lifting ceremonies . . .

By T. F. SMILEY

THE greatest oil show the world ever has seen. It sounds extravagant; but W. G. Skelly, president of the International Petroleum Exposition, and William B. Way, general manager, did not hesitate to use superlatives in describing the big oil fair that will open next Saturday afternoon, May 18, at the exposition grounds in Tulsa, and close May 25.

And a preview of the exhibits confirmed the accuracy of the description.

Marvelously interesting shows have been given in years past, but the 1940 effort unquestionably eclipses all its predecessors. Not only have the management and the exhibitors cooperated in the purpose to make this year's display as comprehensive and stimulating as possible, but the 2 years since the last preceding one have witnessed marked progress in the technique of the oil industry and in the manufacture of equipment for its use. This will be apparent to the visitor who studies the thousands of devices and the demonstrations of modern methods brought together on the 25 acres comprising the exposition grounds.

Everybody likes to have a little pageantry mixed with his big events, so there will be the right degree of it at the formal opening of the show at 2:30 o'clock Saturday afternoon. A brightly uniformed band will snap through Drake Drive to the lilt of a jaunty air while Boy Scouts bearing flags of all nations line the sides. Under the auspices of an American Legion color guard an immense American flag will be raised across the drive. The band will strike up the Star-Spangled Banner. Aerial bombs will burst overhead as airplanes circle the grounds. Then at the crack of a pistol, the appointed signal, the machinery of the 1940 Petroleum Exposition will be set in motion.

Exercises at the speakers' stand will include short addresses by W. M. Jeffers, of Omaha, Neb., president of the Union Pacific Railroad Co.; B. C. Heacock, Peoria, Ill., president of the Caterpillar Tractor Co., and W. G. Skelly, president of the Skelly Oil Co. and of the exposition. Mr. Jeffers has an immediate interest in the oil industry, for his railroad has important production in California.

Twenty-two nations have indicated their intention to have delegates present, giving the largest international representation in the exposition's 17 years of history. Hosts and representatives from 129 leading oil-industry cities will participate in the program arranged, and a group of these cities will be honored each day.

It is estimated that 250,000 oil men will attend the show, the largest single gathering of oil men in the year.

The 500 exhibitors will present all the latest advancements in equipment and methods for the production, refining, transporting, and marketing of oil. The exhibits are estimated to be worth $10,000,000.

Although the opening ceremonies will not take place till afternoon on Saturday, the gates will be open at 9:30 o'clock that morning and each morning after that.

Saturday has been designated as Natural-Gasoline Day; Sunday, "Old Timers" Day; Monday, Production Day, Drillers Day, and Engineers Day; Tuesday, International Delegates Day, Refiners Day, Young Oil Executives Day, and Petroleum Motor Transport Association Day; Wednesday, Drilling Contractors Day; Thursday, Safety Day, Pipeliners Day, and Purchasing Agents Day; Friday, Marketers Day and Royalty Owners Day; Saturday, Petroleum-Products Consumers Day.

Old timers of the oil industry will register at the Replica of the Drake Well at 10 o'clock each morning. A memorial service for old timers of the industry will be held at 3 o'clock Sunday afternoon and "grand old man" awards will be presented by the Exposition Old Timers Historical Committee. Thursday noon Mr. Skelly will be host at an old timers luncheon at the exposition grounds.

Beginning at 10 o'clock each morning motion pictures will be shown in the new projection room added this year to the Hall of Science, and there will be a special showing at 7:30 o'clock each evening.

Directors for each day will be 11 to 14 leading oil men of the country or men in affiliated industries. On Thursday there will be an all-day safety conference in the Hotel Tulsa, presided over by W. R. Wallace, of the Magnolia Petroleum Co.

Entertainment features have been provided, including golf tournaments, music and dancing at the Cafe de Petrol each night, and an old timers' luncheon at Shamrock Lodge by Mike and Tom Flanagan. Various other luncheons and sightseeing trips will be announced on the official program.

OFFICERS OF THE INTERNATIONAL PETROLEUM EXPOSITION

SCHEDULE OF EVENTS

ELEVENTH INTERNATIONAL PETROLEUM EXPOSITION, TULSA, MAY 18-25

SATURDAY, MAY 18

Natural-Gasoline Day

Directors of the Day: W. G. Skelly, Earl Sneed, Hugh Stalcup, O. C. Staples, G. A. Tompson, Jay P. Walker, M. F. Waters, G. H. Westby, T. R. Weymouth, H. C. Wiess, H. F. Worley.

In honor of Kansas and Arkansas: Winfield, Independence, Great Bend, Eldorado, Chanute, Topeka, Augusta, Neodesha, Hays, Hutchinson, McPherson, Wichita; Smackover, El Dorado, Texarkana.

9:30 a.m. Exposition gates open.

10:00 a.m. Registration of "Old Timers" of Petroleum Industry in Replica of Old Drake Well, exposition grounds.

10:00 a.m. Hall of Science opens; movies all day.

2:00 p.m. Opening ceremony, Drake Drive, exposition grounds. Principal speakers will be Gov. Leon C. Phillips of Oklahoma; W. M. Jeffers, president, Union Pacific Railroad; B. C. Heacock, president, Caterpillar Tractor Co.

3:00 p.m. Registration of international delegates, International Delegates Building.

4:30-5:30 Exposition vice presidents' reception in honor of opening-day speakers, W. M. Jeffers and B. C. Heacock; Hotel Tulsa.

6-8 p.m. Music in the Cafe de Petrol.

7:30 p.m. Special showing, Hall of Science; movies.

9:30-12 Dining and dancing, Cafe de Petrol.

SUNDAY, MAY 19

"Old Timers" Day

Directors of the Day: Ralph B. Pringle, F. O. Prior, Paul M. Raigorodsky, E. B. Reeser, Edward E. Robbins, C. F. Roeser, Harry H. Rogers, E. J. Sadler, Ed H. Sairin, J. H. Satterwhite, W. A. Schlueter, J. L. Shakely, R. C. Sharp, J. S. Sidwell.

GENERAL EXPOSITION HEADQUARTERS

Exposition Grounds—Phone 6-2171

William B. Way,
General Manager

Housing Bureau—Phone 2-3271

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Lobby Mayo Hotel
Lobby Hotel Tulsa
Union Station
Lobby Tulsa Chamber of Commerce
and Exposition Grounds

All events at Exposition Grounds unless otherwise specified

In honor of Pennsylvania, Texas, and Mississippi: Franklin, Titusville, Pittsburgh, Oil City, Bradford, Washington, Brownsville, Fort Worth, Amarillo, Pampa, Longview, Houston, Wichita Falls, Dallas, San Angelo, Sweetwater, Marshall, Eagle Pass, Midland, Tyler, Kilgore, San Antonio, Austin, Laredo, Corpus Christi, Jackson.

9:00 a.m. Registration of international delegates in International Delegates Building.

10:00 a.m. Registration of "Old Timers" in Replica of Old Drake Well, exposition grounds.

10:00 a.m. Hall of Science opens; movies all day.

3:00 p.m. Memorial service for "Old Timers" and presentation of "Grand Old Man" awards by Exposition Old Timers Historical Committee; exposition grounds.

6-8 p.m. Music in the Cafe de Petrol.

7:30 p.m. Special showing, Hall of Science; movies.

9 p.m.-1 Dining and dancing, Cafe de Petrol.

MONDAY, MAY 20

Production Day
Drillers Day
Engineers Day

Directors of the Day: C. Morris, W. J. Morris, E. J. Nicklos, A. O. Olson, C. H. Pape, H. N. Pardee, George Parker, F. B. Parriott, A. W. Peake, J. Edgar Pew, Henry L. Phillips, Waite Phillips, Warren C. Platt, C. A. Prichard.

In honor of Oklahoma and Tennessee: Seminole, Ponca City, Wewoka, Nowata, Okmulgee, Muskogee, Oklahoma City, Bartlesville, Guthrie, Claremore, Norman, Drumright, Chickasha, Ada, Glenpool, Cushing, Fairfax, Holdenville, Stillwater, Ardmore, Perry, Memphis.

All day: Golf tournament practice round; Tulsa Country Club.

8:00 a.m. Exhibitors' breakfast, Cafe de Petrol (it's on the house). All exhibitors are urged to have a representative present.

9:30 a.m. Exposition gates open.

9:30 a.m. Registration of international delegates in International Delegates Building.

10:00 a.m. Hall of Science opens; movies all day.

10:00 a.m. Registration of "Old Timers" in Replica of Old Drake Well, exposition grounds.

12 noon Engineers Club of Tulsa, luncheon for visiting engineers; Crystal ballroom, Mayo Hotel.

6-8 p.m. Music in the Cafe de Petrol.

7:30 p.m. Special showing, Hall of Science; movies.

8:00 p.m. Tulsa Geological Society, evening program, visiting geologists as special guests; Kendall Hall, University of Tulsa.

8:00 p.m. First performance, Oil Capital Horse Show, Livestock Pavilion, just outside exposition grounds.

9 p.m.-12 Dining and dancing in Cafe de Petrol.

TUESDAY, MAY 21

International Delegates Day
Refiners Day
Young Oil Executives Day
Petroleum Motor Transport Association Day

Directors of the Day: John E. Mabee, Clarel B. Mapes, O. E. McClatchey, R. Otis McClintock, L. F. McCollum, E. B. McFarlin, Joseph R. McGraw, D. F. McMahon, Charles L. McMahon, Walter Miller, A. A. Moody, Ed H. Moore, William D. Moorer.

In honor of California, Colorado, and Louisiana: Santa Barbara, Long Beach, Bakersfield, San Francisco, Los Angeles, Coalinga, Fresno, Denver, Trinidad, Shreveport, Lafayette, Monroe, Baton Rouge, Rodessa.

8:00 a.m. Qualifying round, golf tournament; Tulsa Country Club.

9:30 a.m. Exposition gates open.

9:30 a.m. Registration of international delegates in International Delegates Building.

10:00 a.m. Hall of Science opens; movies all day.

10:00 a.m. Registration of "Old Timers" in Replica of Old Drake Well, exposition grounds.

10:00 a.m. Young executive oil men's day, sponsored by Junior Chamber of Commerce.

11:30 a.m.-2 Bethlehem International Supply Co. and Bethlehem Supply Corp. open house at plant, 805 East Archer.

12 noon "Old Timers" luncheon.

12 noon Junior Chamber of Commerce, young oil men's luncheon; Chamber of Commerce dining room, Tulsa Building.

2-4 p.m. Junior Chamber of Commerce, young oil men's trip through the Mid-Continent Petroleum Corp. refinery.

2:30 p.m. Trip to nearby oil field for seismograph demonstration through courtesy of Seismograph Corp.

5:30 p.m. International delegates reception and banquet, Nomads Club members as hosts; Tulsa Club.

6-8 p.m. Music in the Cafe de Petrol.

7:00 p.m. Petroleum Motor Transport Association banquet; Hotel Tulsa.

7:30 p.m. Special showing, Hall of Science; movies.

8:00 p.m. Oil Capital Horse Show, Livestock Pavilion just outside exposition grounds.

8:30 p.m. Junior Chamber of Commerce, young oil executives party.

9-12 p.m. Dining and dancing in Cafe de Petrol.

WEDNESDAY, MAY 22

Drilling Contractors Day

Directors of the Day: Rush Greenslade, L. S. Gregory, Henry Greis, S. A. Guiberson, Jr., P. D. Hayes, J. M. Hayner, Alf G. Heggem, I. H. Hill, Frank J. Hinderliter, B. E. Horrigan, W. L. James, Roy B. Jones, A. J. Kerr, P. C. Lauinger.

In honor of Utah, New Mexico, Wyoming, Montana: Salt Lake City, Santa Fe, Roswell, Carlsbad, Albuquerque, Sheridan, Casper, New Castle, Lander, Gillette, Cheyenne, Gallup, Billings, Great Falls, Helena, Lewistown.

8:00 a.m. First round, golf tournament, 18 holes; Tulsa Country Club.

9:30 a.m. Exposition gates open.

9:30 a.m. Registration of international delegates in International Delegates Building.

10:00 a.m. Registration of "Old Timers" in Replica of Old Drake Well, exposition grounds.

10:00 a.m. Hall of Science opens; movies all day.

12 noon Luncheon for international delegates to the exposition, sponsored by Rotary Club; Hotel Tulsa.

12 noon Mike Flanagan's luncheon for "Old Timers"; Shamrock Lodge.

4-8 p.m. Drilling contractors' party; Warren & Bradshaw Drilling Co., hosts; Tulsa Club roof.

6-8 p.m. Music in the Cafe de Petrol.

7:30 p.m. Oil Capital Horse Show, Livestock Pavilion, just outside exposition grounds.

9-12 p.m. Dining and dancing in Cafe de Petrol.

10:00 p.m. Junior League Horse Show Ball; Hotel Tulsa.

THURSDAY, MAY 23

Safety Day
Pipeliners Day
Purchasing Agents Day

Directors of the Day: E. R. Filley, W. S. Fitzpatrick, J. P. Flanagan, Walter Fleming, C. W. Flint, Jacob France, Wirt Franklin, J. R. Freeman, V. C. Fuller, J. H. Gardner, Robert F. Garland, J. Burr Gibbons.

In honor of West Virginia and New York: Charleston, Parkersburg, Huntington, Sistersville, Wheeling, Clarksburg, Olean, New York City.

8:00 a.m. Second and third rounds, 18 holes, golf tournament; Tulsa Country Club.

9:30-4 p.m. All-day safety conference; Topaz room, Hotel Tulsa.

9:30 a.m. Exposition gates open.

9:30 a.m. Registration of international delegates in International Delegates Building.

10:00 a.m. Registration of "Old Timers" in Replica of Old Drake Well, exposition grounds.

10:00 a.m. Hall of Science opens; movies all day.

12 noon Safety conference luncheon; Topaz room, Hotel Tulsa.

12 noon Tulsa Geological Society, luncheon for visiting geologists; Michaelis Cafeteria, 507 South Boulder.

12:30 p.m. "Old Timers" luncheon at the exposition grounds; W. G. Skelly, host.

6-7 p.m. Reception for local and visiting purchasing agents, followed by:

6-8 p.m. Music in the Cafe de Petrol.

6:30 p.m. Safety banquet and awarding of safety contest prizes; Topaz room, Hotel Tulsa.

7:00 p.m. Informal dinner; Roof Garden, Tulsa Club.

8:00 p.m. Oil Capital Horse Show, Livestock Pavilion, just outside exposition grounds.

9-12 p.m. Dining and dancing in Cafe de Petrol.

FRIDAY, MAY 24

Marketers Day
Royalty Owners Day

Directors of the Day: H. W. Camp, William L. Connelly, E. A. Cook, Fred E. Cooper, H. M. Cosgrove, R. E. Day, R. C. Dietler, C. P. Dimit, Ray L. Dudley, Dr. Gustav Egloff, R. S. Ellison, W. S. Farish, Harold B. Fell, George P. Fenn.

In honor of Indiana and Ohio: Vincennes, Columbus, Marietta, Canton, Akron, Findlay.

9:00 a.m. Finals, golf tournament; Tulsa Country Club.

9:30 a.m. Exposition gates open.

9:30 a.m. Registration of international delegates in International Delegates Building.

10:00 a.m. Hall of Science opens; movies all day.

10:00 a.m. Registration of "Old Timers" in Replica of Old Drake Well, exposition grounds.

12 noon International Petroleum Exposition luncheon, Tulsa Chamber of Commerce; fourth floor, Tulsa Building.

6-8 p.m. Music in the Cafe de Petrol.

8:00 p.m. Oil Capital Horse Show, Livestock Pavilion, just outside exposition grounds.

9-12 p.m. Dining and dancing in Cafe de Petrol.

SATURDAY, MAY 25

Petroleum Products Consumers Day

Directors of the Day: Clyde Alexander, R. H. Bartlett, Frank R. Billingslea, Allmand M. Blow, A. F. Bourne, W. M. Bovaird, A. E. Bradshaw, H F. Bridges, J. H. Brooks, D. E. Buchanan, A. A. Buschow, J. Garfield Buell, E. J. Bullock.

In honor of Missouri, Illinois, Kentucky, Michigan: Joplin, Kansas City, St. Louis, Chicago, Effingham, Lawrenceville, Flora, Casey, Mattoon, Centralia, Robinson, Muskegon, Detroit, Mount Pleasant, Flint, Big Rapids, Saginaw, Owensboro, Lexington, Bowling Green, Ashland, Paducah.

9:30 a.m. Exposition gates open.

9:30 a.m. Registration of international delegates in International Delegates Building.

10:00 a.m. Hall of Science opens; movies all day.

6-8 p.m. Music in the Cafe de Petrol.

8:00 p.m. Closing performance, Oil Capital Horse Show, Livestock Pavilion, just outside of exposition grounds.

9 p.m.-1 Dining and dancing in Cafe de Petrol.

WHO'S WHO AMONG THE EXHIBITORS AND WHAT THEY'LL SHOW, PAGE 167

An alphabetical list of the nearly 500 exhibitors who will be represented at the exposition, together with a description of the exhibits and names of representatives who will be in attendance, is included in a special section of this issue which begins on Page 167. A diagram of the exposition grounds is on Page 166.

Hall of Science Prepares a Notable Array of Exhibits

By GUSTAV EGLOFF
Director of Science Exhibit, Hall of Science, International Petroleum Exposition and Congress

TO bring the oil men of America and the world up to date on the latest processes and methods for finding petroleum, producing it, transporting it, and refining it, is the purpose of exhibits displayed in the Hall of Science at the International Petroleum Exposition and Congress.

This year, the eleventh exposition which opens May 18, the exhibits will be more numerous and more instructive than ever. And the demonstrations will be carried a step farther than last year —to utilization of motor fuel in some of the newest of aircraft engines.

The Hall of Science has been enlarged to accommodate the greater number of exhibits and a motion-picture projection room 60 by 40 ft. has been added.

One of the newest developments of science in oil finding which will be demonstrated in the Hall of Science is the soil-analysis exploration procedure, in which surface soil is tested for hydrocarbon content. The great advances which have been made in acidizing oil wells to increase production will be shown and fuel-testing units, including one of the latest Wright aeronautical engines, will be in operation along with models of tanks, trucks, a machine for training pilots in blind flying, and other new equipment.

On entering the Hall of Science, the visitors' attention will be caught first by geophysical and geological exhibits, including some from foreign countries.

The geological department of the Government of Argentina will have an exhibit showing important facts about petroleum resources of that nation. Charts and maps will show structures and formations in various oil-producing areas in the United States, along with cores of oil-producing formations, including those of the 15,000-ft. well in Central California, which is the deepest well ever drilled.

In the exploration exhibits will be included aerial photographs and displays showing how they are used in preparing geological surface maps and in working out structural geology. Another exhibit will demonstrate the use of the whipstock in deflectional drilling and apparatus for showing the measurement and control of directional drilling. An exhibit will show how petroleum resources may be located by means of soil analysis.

In the geophysical booth will be exhibited complete working apparatus in working order which will be used to demonstrate the process of seismograph exploration. The gamma-ray method of logging wells will also be described.

A swamp buggy, of the type used in the exploration of swampy and marshy territory, will be displayed for the first time at the International Petroleum Exposition.

Texas Railroad Commission Exhibit

A complete exhibit of various petroleum charts, maps, and other materials will portray the work of the Railroad Commission of Texas.

The National Park Service is completing work on a large diorama, to have its initial showing at the International Petroleum Exposition, showing the structure of the Tularosa basin, in which is located the largest gypsum deposit in the world. Its value will be in the showing of the geological processes of the formation of these White Sands of Alamagordo, as they are called.

A complete working model of a cable-tool rig, operated by compressed air, will be shown, together with a working model of a spudder which will be approximately 11 ft. high and 6 ft. long.

The increasing use of acid in raising production from limestone reservoirs and sandy lime formations will be demonstrated through charts and photos, which will show that ultimate recovery is increased by acidizing. Samples will be shown of various formations, illustrating how the acid actually works on these. Acid control of water-oil ratios will also be explained.

Another exhibit in the Hall of Science will show a flowing christmas tree made of glass, a gas-operated pump, gas separator, manifold showing lines to other wells, and related equipment.

In the transportation division of the petroleum industry up-to-the-minute streamlined models of the latest tank wagons for the hauling of gasoline, fuel oil, crude oil, and kerosene, will be shown.

Improved tractive equipment, capable of handling the jobs of today, will be shown in contrast with the early types of tractors. All-wheel-drive equipment will also be seen in complete detailed photographs.

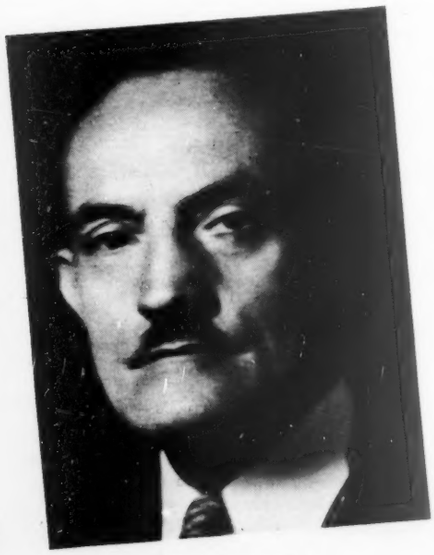
The first exhibit to be placed in the Hall of Science is one of types and uses of return bends manufactured for use in high-pressure stills, together with the early types of bends which were first developed.

The type and uses of newly devised gas detector and fluoroscope will be shown as applied to the detecting of the presence of gas and oil in drilling fluids.

The use of a special chlorex solvent in processing for the production of high-grade lubricating oils from Mid-Continent and other crudes will be shown in another exhibit in the exposition's Hall of Science. The improved product made possible through the use of this solvent is of high viscosity and is comparable to Pennsylvania Grade in its resistance to oxidation and sludging

An exhibit in color will show the various steps in the processing of raw materials to obtain a variety of finished carbon and graphite products, together with samples and photos showing their characteristics and applications.

Other exhibits in the Hall of Science of especial



GUSTAV EGLOFF

Cochairmen who prepared Hall of Science exhibits

THE two tireless workers who are responsible for preparing the Hall of Science exhibit described on this page are Gustav Egloff, director of research of Universal Oil Products Co., Chicago, and B. B. Weatherby, of Geophysical Research Corp. The latter was named to succeed the late Dr. C. K. Francis.

Dr. Egloff is the 1940 recipient of the medal which is awarded annually by the American Institute of Chemists for outstanding service to the science of chemistry and to the American chemical profession. The medal will be awarded at the institute's annual meeting to be held in Atlantic City, May 18.

The award, it is stated, is made in recognition of Dr. Egloff's work in developing some of the most outstanding processes for the refining and treating of crude oils and gasoline; for the prodigious amount of publication in the field of petroleum and hydrocarbon chemistry, amounting to over 400 articles and books; for the issuance to him over 250 patents relating to processing of petroleum oil, shale oil, coal, and chemical derivatives of hydrocarbons.

B. B. WEATHERBY

interest to refiners will be a static model of a natural-gasoline plant, types of separators and their uses, a miniature desalting plant, old and new types of lubricators, and many photographs showing outstanding refinery installations.

Included among exhibits of supplies and equipment will be gages and other newly perfected instruments of precision, new line scales with automatic recorder which uses a metal chart for permanent records, an exhibit of the history of gas engines and magneto development, and of various other types of new equipment.

Another instrument, already in place, is a glass centrifugal pump which will be in actual operation.

Showing the improvement in the method of hauling petroleum products to market, an old-time riveted tank wagon will be shown, complete with full-sized papier-mache team in harness. Also of interest to members of the marketing division will be various types of tanks and tank-cleaning methods.

An all-modern laboratory as used by oil companies and refineries will be displayed in another section of the Hall of Science.

Bureau of Mines Exhibit

The U. S. Bureau of Mines will have a complete exhibit showing various lines of research which are being carried on for the benefit of members of the petroleum industry. In connection with this will be an exhibit showing the special properties of natural gas.

The importance of safety in all of the operations of the petroleum industry will be graphically shown in a display by the exposition's safety committee. Murals and photographs will be included in this exhibit, together with a complete model of a modern derrick, with safety devices clearly shown.

Exhibits will be included in the Hall of Science this year showing devices and methods of especial related interest. Included among these will be an elaborate exhibit showing the complete services of the A.P.I. and what that organization means to the oil business.

Exhibits showing the special finishing of metals will be included, together with displays of the manufacture and finishing of roller and ball bearings which are of extreme importance to all branches of the petroleum industry.

A special exhibit will show how Ethyl Gasoline is manufactured and its value and uses in gasoline motors. Related to this exhibit is one sponsored by the Society of Automotive Engineers which will show in operation various types of C.F.R. engines.

Some of the latest uses of radio in connection with branches of the petroleum industry, such as exploration, will be seen in the Hall of Science. In this connection, television apparatus is being planned for exhibition.

A complete model of an automobile factory will be shown, and will cover a space approximately 10 by 25 ft.

Center of attraction in the field of related equipment will be the $10,000 Link trainer used in the training of pilots for blind-flying operations. This machine will be attended by an expert operator, and "rides" will be given to those who are interested in a demonstration.

The International Petroleum Exposition has made arrangements for the use of the latest model 16-mm. sound-movie projector in the new addition which has been made to the Hall of Science. This "theater" will be in use throughout each day for the showing of special films describing new methods and procedures in the petroleum industry.

WELCOME!

Make The Journal's Exhibit Your Meeting Place

You are cordially invited to visit The Oil and Gas Journal's building during the exposition. Here you'll find comfortable chairs and lounges, ice water, sound-deadened telephone booths, a Journal reference file, and other facilities provided for your comfort and convenience. And of course there'll be Journal Johnny, grinning, nimble-footed messenger, who'll carry your messages and run your errands, quickly and cheerfully. So—come and see us.

Safety Program Exposition Feature

SAFETY in the petroleum industry—from the employes' side—will be brought out through a panel discussion on "What Workers Want in a Safety Program," which is included on the all-day safety-conference program on Thursday, May 23, during the eleventh International Petroleum Exposition.

Employes representing production, pipe line, refining, and marketing branches of the oil industry will participate in this panel discussion.

Principal speakers on the all-day conference program, scheduled to begin at 9:30 a.m. in the Topaz room of the Hotel Tulsa, include: H. N. Blakeslee, director, Department of Accident Prevention, American Petroleum Institute, New York City; R. C. Ledbetter, manager, safety engineering department, Employers Casualty Co., Dallas; Dr. Gustav Egloff, director of research, Universal Oil Products Co., Chicago, and chairman of the exposition's scientific and technical committee; Felix Doran, Jr., general manager, fleet sales division, General Motors Sales Corp., Detroit, Mich.; D. V. Stroop, American Petroleum Institute; and Col. Phillip Donnell, dean, school of engineering, Oklahoma A. & M. College, Stillwater.

So far as is known, this is the first safety conference to offer a panel discussion by employes and giving them an opportunity to tell their side of safety.

F. K. Dalrymple, president, Mid-Continent Petroleum Safety Council, will preside at the morning session of the conference; W. R. Wallace, vice president, Mid-Continent Oil and Gas Association, Oklahoma-Kansas Division, Oklahoma City, will preside at the noon luncheon; and H. W. Boggess, superintendent of safety, Sinclair Prairie Oil Co., chairman of the exposition's central safety committee, will preside at the afternoon session of the conference.

The complete schedule for the all-day safety conference to be held Thursday, May 23, is as follows:

9:30 a.m.: Morning session opened, with F. K. Dalrymple, president of the Mid-Continent Petroleum Safety Council, presiding.

9:35 a.m.: Address of Welcome by W. G. Skelly, president, International Petroleum Exposition.

9:45 a.m.: "A Decade of Progress in Accident Prevention," by H. N. Blakeslee, director, Department of Accident Prevention, American Petroleum Institute, New York City.

10:30 a.m.: Greetings from Col. John Stillwell, president, National Safety Council.

11:00 a.m.: "Consideration of Safety in Scientific and Technological Development of Refining Processes," by Dr. Gustav Egloff, director of research, Universal Oil Products Co., Chicago, and chairman of the exposition's scientific and technical committee.

H. N. Blakeslee, director, Department of Accident Prevention, American Petroleum Institute, New York, will address the morning session of the all-day safety conference to be held during International Petroleum Exposition on Thursday, May 23

11:30 a.m.: Adjourn.

12:00 noon: Luncheon with W. R. Wallace, Mid-Continent Oil and Gas Association, Oklahoma-Kansas Division, Oklahoma City, presiding.

12:30 p.m.: "Safer cars! Safer Drivers?" by Felix Doran, Jr., general manager, Fleet Sales Division, General Motors Sales Corp., Detroit.

1:25 p.m.: Afternoon session opened, with H. W. Boggess, superintendent of safety, Sinclair Prairie Oil Co., Tulsa, and chairman of the exposition's central safety committee, presiding.

1:30 p.m.: "Safety in the Delivery of Flammable Liquids," by D. V. Stroop, American Petroleum Institute.

1:45 p.m.: "Training for a Career in Industrial Safety," by Col. Phillip Donnell, dean, School of Engineering, Oklahoma A. & M. College, Stillwater, Okla.

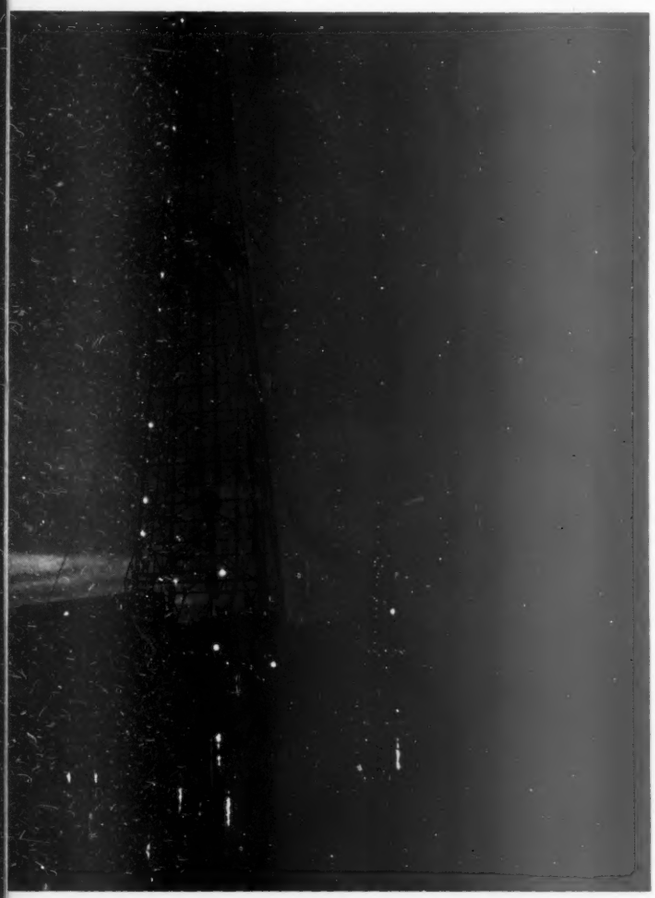
2:30 p.m.: Panel Discussion, "What Workers Want in a Safety Program," with members representing production, pipe line, refining, and marketing divisions of the petroleum industry.

3:30 p.m.: Adjourn.

7:00 p.m.: Safety banquet, with B. C. Heacock, president, Caterpillar Tractor Co., Peoria, Ill., to make main address, and 12 winners of exposition safety contests to be awarded gold engraved watches by exposition president, W. G. Skelly.

All sessions, including luncheon and banquet, will be held in the Topaz Room, Hotel Tulsa.

Exhibits at Exposition Oil-Industry Market . .



In 1940 the various branches of the oil and natural-gas industries will spend in excess of 1 billion dollars with manufacturers and suppliers in other industries. This tremendous market which is summarized in the accompanying digests, reflects constant improvement in processing methods and steady expansion in demand for the products of the industry.

•

Drilling, $350,000,000

DRILLING operations have been running 14.5 per cent ahead of last year, pointing to the drilling of 31,000 wells in 1940, a yearly total exceeded only in 1920 and 1937. At present there are more than 3,000 wells drilling.

The average number of wells completed annually during the last 5 years: Oil wells, 18,961; gas wells, 2,005; dry holes, 5,805; total, 26,771.

The average depth of wells drilling at this time is approximately 3,200 ft. Wells vary in depth from less than 500 ft. to more than 15,000.

Drilling is accomplished by approximately 8,000 drilling rigs of all types owned by oil companies and drilling contractors. Value of the rigs varies from $5,000 to $150,000, with the average valuation being approximately $21,000.

The average expenditure for drilling equipment for each rig per year is approximately $11,250 while the annual expenditure per company owning drilling equipment for this item alone is estimated to be $27,000.

The regular expenditures include hoists, pumps, internal-combustion and steam engines, electric generators and motors, drill pipe, wire lines, rubber hose, pipe fittings and valves, boilers, bearings, sprockets, instruments, hand tools, bits, chemicals and ground additives for conditioning drilling mud, compounds for water treatment, lubrication, welding, repair of engines and motors, trucking, automobiles, insurance and special services such as hole surveying, cementing and acidizing.

Percentage of 1940 drilling by more important districts based on number of tests completed so far this year: New York, Pennsylvania, Ohio, Indiana, Kentucky, 20.3; Illinois, 12.2; Michigan, 4.6; Kansas, 5.3; Oklahoma, 6.4; Texas, 37.2; Louisiana, 5.4; New Mexico, 2.6; California, 3.8; Arkansas, Montana, Wyoming, Mississippi, and Colorado, 2.2

Production, $150,000,000

TWENTY-THREE oil and gas-producing states had approximately 373,500 oil wells and 57,000 gas wells on January 1, 1940. During the year the number of oil wells will be increased by an estimated 4,750 wells, this figure being the average difference over a period of years between the number of new oil wells completed and those abandoned.

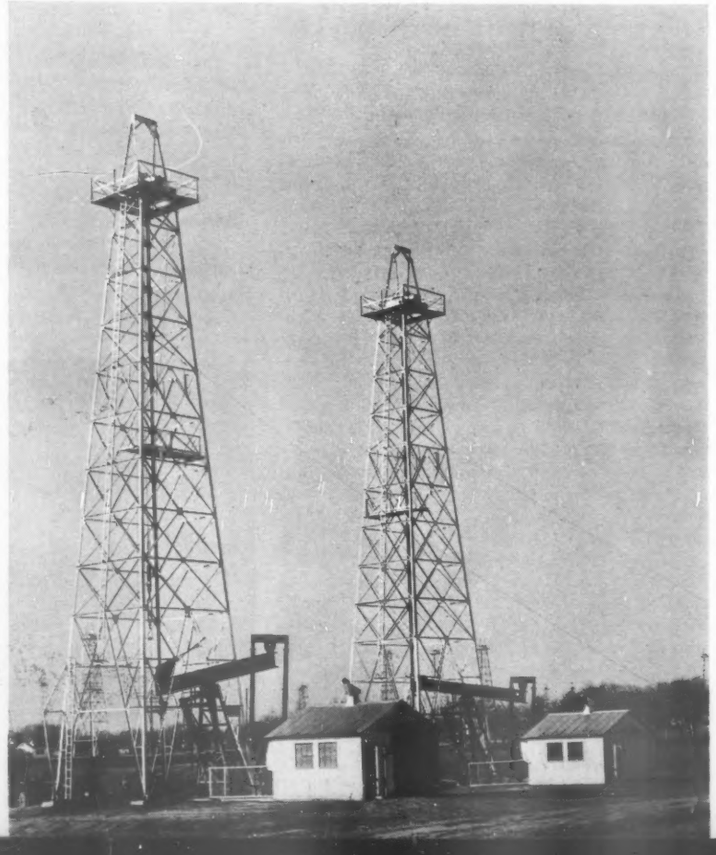
Total production during 1939 was 1,255,783,534 bbl. and it is estimated that 1940 production will show an increase of at least 5 per cent, assuring a new yearly record.

Natural-gas production will total more than 2,500,000,000,000 cu. ft. in 1940.

Producing wells vary in depth from less than 500 ft. to 13,266 ft., the deepest well in the world; over 40 fields are producing from depths in excess of 10,000 ft. Approximately 90 per cent of the wells require some means of lifting the oil.

A flowing well of the average depth—approximately 3,200 ft.—costs about $8,700 to equip, including a treater. All wells, regardless of how they are produced in their initial stages, eventually are placed on the pump. This requires the addition of $2,000 worth of equipment, the principal items being sucker rods, pumping unit and engine.

Percentage of national crude oil production total by areas: Oklahoma, 11.2; Texas, 37.3; Louisiana, 7.9; California, 16.1; Kansas, 4.2; Eastern fields, 2.9; Illinois, 11.4; Michigan, 1.6; New Mexico, 3.1; Arkansas and Mississippi, 2.1; Rocky Mountain, 2.2.



Reflect Billion-Dollar

Pipe-Line Transportation, $100,000,000

THE pipe-line industry in 1939 with over 4,000 miles of new trunk-line construction had its best year in a decade. New construction so far is running ahead of 1939 with new major lines in prospect before the end of the year.

The trunk-line systems in the United States are divided as follows: Crude oil, 59,000 miles; natural gas, 81,000 miles, and gasoline, 10,000 miles. In addition there are 55,000 miles of gathering lines for the crude oil and 102,000 miles of distributing lines for the natural-gas systems.

Sizes on the crude-oil lines range from 2 in. to 16 in.; natural gas, 1 in. to 24 in., and gasoline, 4 in. to 12 in.

The investment in present facilities exceeds $2,000,000,000 with equipment and materials purchases for maintenance alone totaling $50,000,000 yearly.

While the expenditures in new lines varies from year to year the construction trends over the past 3 years indicate that an average total is approximately $50,000,000 yearly.

Crude-oil systems are constantly being extended into new fields and over the past 2 years entirely new systems have been built connecting fields to refinery centers.

Existing natural-gas systems operated at capacity the past year and enlargement programs have been announced or are in prospect. Finding of additional gas reserves has resulted in plans for the construction of lines to serve new markets.

Gasoline lines have strengthened their position as an economical method of transportation and conditions within the industry point to a steady expansion of new lines in several sections. Surveys have shown that additional pipe-line capacity for the transportation of motor fuels would be justified over a large part of the consuming area east of the Mississippi River and certain sections of Middle West located west of the Mississippi River.

Refining, $250,000,000

THERE are 453 active refineries in the United States with a rated crude-oil capacity of 4,430,978 bbl. daily. With few exceptions the plants operate 24 hours daily throughout the year.

These plants this year will refine an estimated 1,281,000,000 bbl. of crude oil, an average of 3,500,000 bbl. daily. This represents a 100 per cent gain in operations since 1922 and 30 per cent since 1929.

Owners of these refineries will spend in excess of $2,000,000,000 for crude oil and plant operations. Percentage yields, based on January-February plant operations: Gasoline, 45.5 per cent; kerosene, 5.8 per cent; gas oil and distillate, 16 per cent; fuel oil, 24.4 per cent; lubricating oils, 3 per cent; miscellaneous and losses, 5.3 per cent.

Estimated investment in petroleum refining is $3,750,000,000, which, based on plant capacity, is divided as follows: Middle West, 37 per cent; Gulf Coast, 29 per cent; California, 13 per cent; East Coast, 14 per cent; Appalachian, 4 per cent, and Rocky Mountain, 3 per cent.

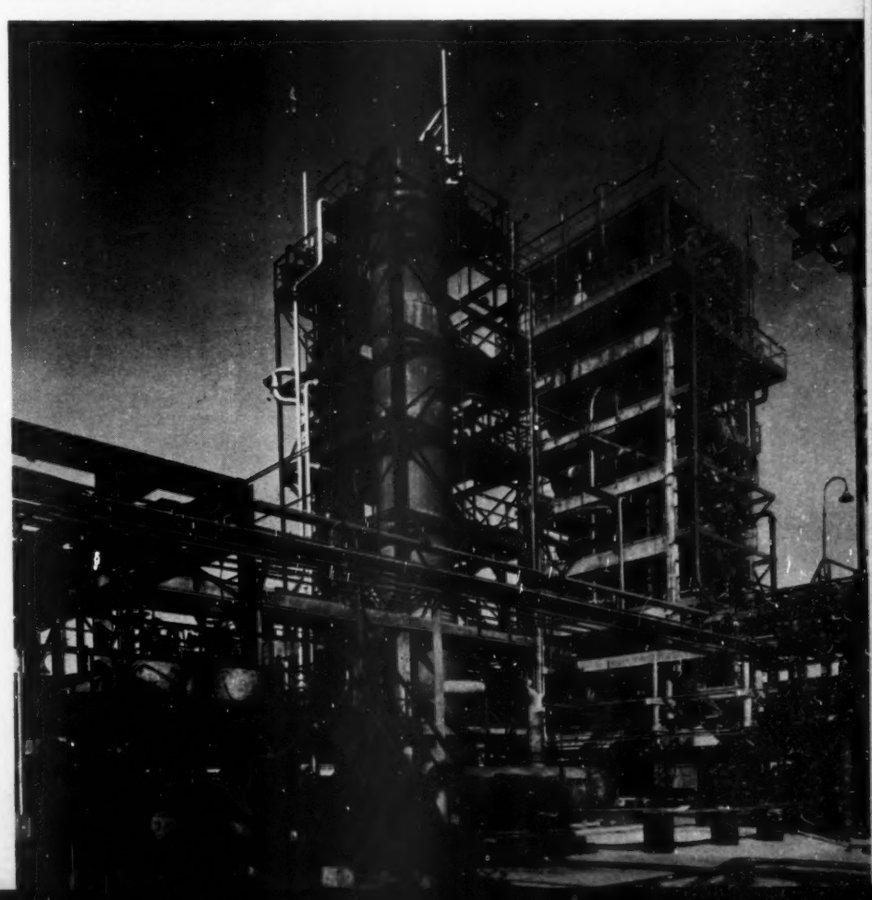
Recent manufacturing trends include use of catalysts in cracking operations, solvent refining of lubricating oils, and major changes in design of heating and auxiliary equipment.

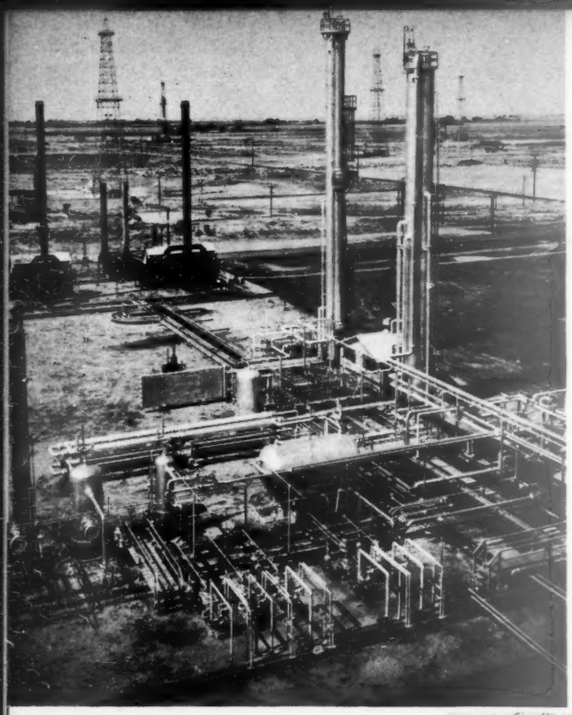
In its list of 1940 purchases the oil-refinery industry will include the following items:

Wrought and seamless steel and chrome-moly valves and fittings, cast-iron drain and condenser equipment, valves and fittings, prefabricated pumps, towers, control and recording instruments, furnaces, tanks, boilers, generators and insulation. These are connected by steel, chrome-moly, copper bearing, brass and cast-iron pipes and tubes.

Where electric pumping is in use large quantities of wire, switches, transformers, conduit and insulators will be needed. For all these items delivered to the refineries in the form of prefabricated units or as replacement parts approximately $125,000,000 will be paid out.

Sulfuric acid, ammonia, caustic, litharge, soda ash, calcium chloride, copper sulfate, catalysts, fullers' earth, water-softening compounds, tetraethyl lead, inhibitors, and lubricating-oil additions will call for expenditures totaling $95,000,000.





$1,000,000,000 Market

THERE are 620 natural-gasoline plants located in 16 states varying in output from a few gallons to more than 100,000 gal. daily. Present output of these plants is approximately 6,000,000 gal. daily, which is about half their total rated capacity. This production will account for about 9 per cent of 1940 motor-fuel supply in this country.

The ranking of the individual states in output corresponds in most instances to their rank in the production of crude oil. Illinois is an important exception to this rule with small natural-gasoline output at this time.

Widely varying field and marketing conditions and gasoline content of gas determines type of plant and specifications of products.

Production of liquefied gases, repressuring of fields, gas-lift methods and recycling operations are of increasing importance in determining operating procedure and plant equipment in the manufacture of natural gasoline.

Low prices for finished products have resulted in increased facilities for stabilization and large quantities are being sold as finished motor fuels. Considerable interest is now being displayed in the possibilities of catalytic operations in the production of finished products.

Natural Gasoline,
$50,000,000

Marine,
$100,000,000

OF a total of approximately 1,700 oil tankers, 425 are registered in the United States. Those of American registry take care of practically all of the coastwise transportation of crude oil and products and part of the oil trade with foreign countries.

Following a lull in the early thirties new tanker construction has expanded and 1940 will be one of the most active periods in the history of the industry.

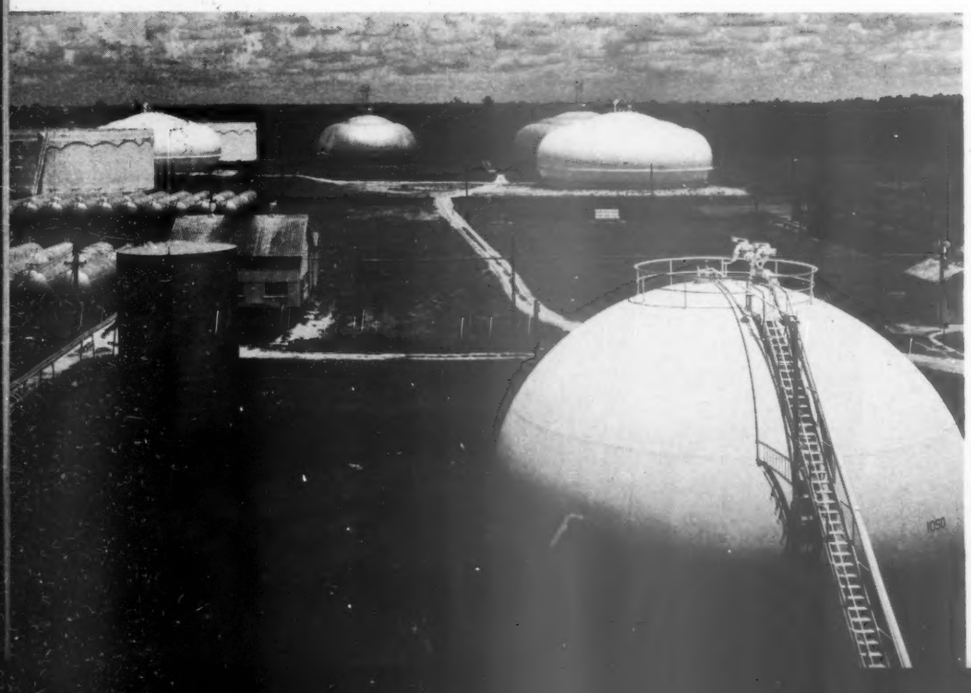
Two tankers launched the past 2 weeks are representative of the new design. One of the tankers has a deadweight in excess of 16,300 tons, with a capacity in excess of 6,000,000 gal. This tanker is specially designed for high speed in war service through an arrangement in which part of the cost is paid by the U. S. Government. The rated speed is 18 knots.

The second tanker launched Saturday has an overall length of 544 ft., with a capacity of 6,552,000 gal. The turboelectric engines will develop 5,000 hp. with a sea speed of 13.25 knots. It is predicted that the speed, economy, and comfort of the new-type tankers will result in a gradual replacement of approximately one-third of the tankers now in service.

Inland waters are coming into greater use for the transportation of oil from major refining centers to areas of concentrated population. In 1940 inland waters, including the great lakes, will handle about 130,000,000 bbl. of refined and crude oils.

Specially designed tankers and barges have been built for these inland waters over the past 5 years.

Oil Marketing,
$150,000,000



RETAIL facilities for marketing petroleum products includes 226,000 filling stations and 182,000 garages, general stores, and other secondary outlets scattered throughout the country. It has come to represent 7 per cent of all the retail business done in the community.

Sales of petroleum products in wholesale and retail outlets total in excess of $4,000,000,000.

Oil-marketing facilities include 26,000 bulk and storage plants and thousands of tank trucks.

Since 1935 a large majority of service stations have passed from company to dealer ownership due to antichain store and social security legislation. For a time this development retarded new construction.

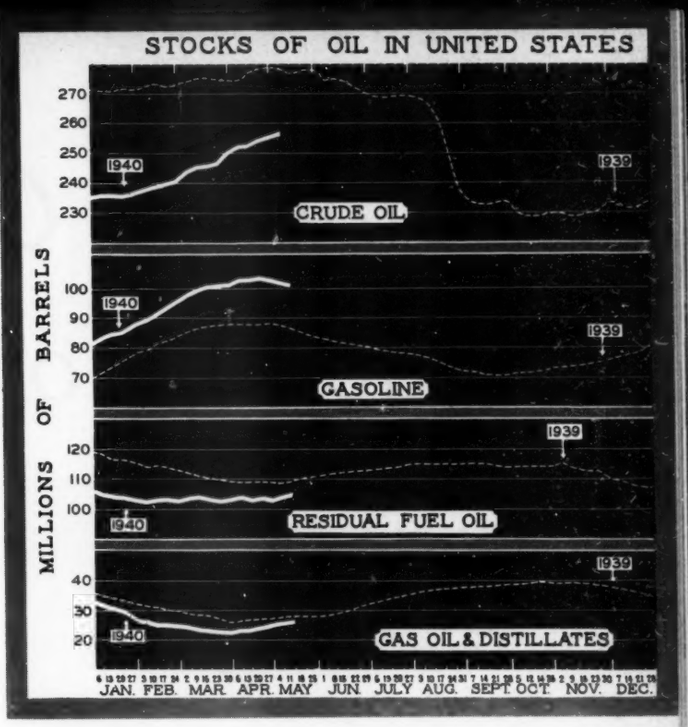
More recently the construction of new stations and modernization of existing stations has been under way in all sections of the country. New facilities for customers and the enlargement of services to include practically all accessories required by motor vehicle owners have been major factors in this expansion.

It is now estimated that sale of lubricants in cans requires more than 2,000,000,000 containers yearly.

While the sale of motor fuels and oils accounts for the bulk of the expenditures in marketing, facilities for the distribution of diesel oils, furnace oils, range oils, kerosene, and other burning and fuel oils are becoming of increasing importance.

Trends

Opposing Trends In Domestic and Foreign Markets



DEVELOPMENTS in markets over the past week further accentuated the differences existing between interior and coastal conditions. Some improvement is apparent in interior markets while coastal conditions continue unsettled and generally weak. Current statistical reports covering production and inventories reflect these opposing developments. The interior markets are largely dominated by conditions in the Mid-Continent and the Middle West. The leveling off of Illinois basin crude production and a tendency to keep refinery-crude runs to stills in line with requirements at interior plants coupled with a satisfactory domestic demand, have brought a more optimistic view of conditions. Many operating in these areas are confident that this improvement will be more apparent marketwise in the near future unless coastal conditions become increasingly critical and dominate all markets.

CRUDE PRODUCTION *3,831,014 bbl. daily average—up 147,845 bbl. One year ago 3,404,356 bbl.*

CRUDE STOCKS *258,210,000 bbl. as of May 4—up 1,540,000 bbl. One year ago 278,607,000 bbl.*

GASOLINE STOCKS *101,317,000 bbl. as of May 11—down 746,000 bbl. One year ago 86,457,000 bbl.*

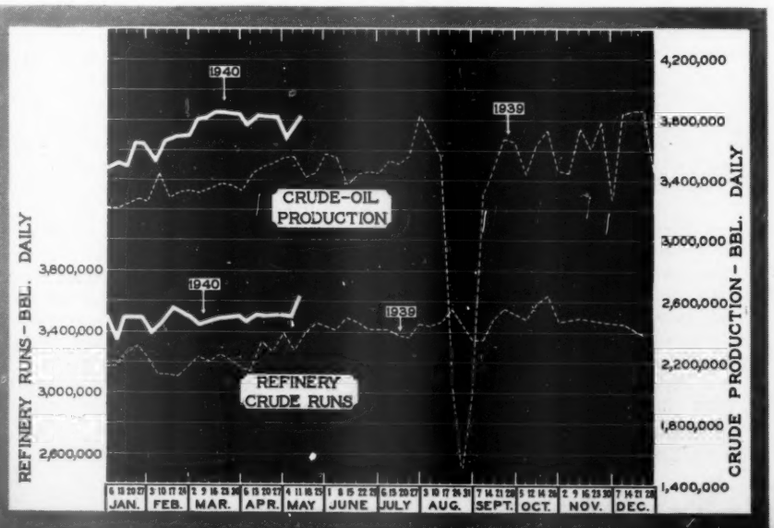
RESIDUAL FUEL-OIL STOCKS *103,985,000 bbl. as of May 11—up 942,000 bbl. One year ago 109,904,000 bbl.*

GAS OIL AND DISTILLATES *26,552,000 bbl. as of May 11—up 894,000 bbl. One year ago 26,904,000 bbl.*

REFINERY RUNS *3,620,000 bbl. daily week ended May 11 — up 115,000 bbl. One year ago 3,400,000 bbl.*

War developments and the failure of Texas and Louisiana to balance crude-oil production and refinery operations in line with a restricted demand are rapidly precipitating a crisis in Gulf Coast and East Coast markets. Every change so far in the European war front over the past few weeks has tended to restrict export movements. In the case of several small coastal refiners and terminal operators new export business has been practically nonexistent since early April. Those closest to this situation agree that the battle now under way on the western front will shortly determine oil-export trends over the next few months at least. The invasion of Netherlands and Belgium is interpreted as an effort by Germany to gain additional bases on the North Sea to lessen the advantage which the Allies have had in shipping since the war started. The fact that the Allies have been able to supply their oil requirements while Germany, despite the increased shipments from Rumania and U.S.S.R., is at least 60 per cent short of war needs, is believed to have been a controlling factor in the Reich's decision to invade neutral countries. The ending of Netherlands neutrality has resulted in protective measures for the two mammoth refineries of the Shell and Standard of New Jersey in the Netherland West Indies. This will have no market significance so long as there are no restrictions in the operation of these plants, whose production is largely absorbed in European markets.

The large increase in crude production last week coming principally from Texas and California and continued heavy runs at Gulf Coast and East Coast refineries are having the inevitable market reactions. These developments indicate that the industry as a unit will not accomplish the May objective of keeping production within the demand as estimated by the Bureau of Mines.


CRUDE-OIL PRODUCTION
REFINERY CRUDE RUNS
1940
1939
REFINERY RUNS - BBL. DAILY
CRUDE PRODUCTION - BBL. DAILY
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

DAILY AVERAGE PRODUCTION FOR WEEK

	May 11, 1940	Bur. Mines May est. of demand	May state allowable	May 4, 1940
Oklahoma City	93,000	.....	.....	98,500
Seminole fields	37,725	.....	.....	37,950
Remainder of state	279,200	.....	.....	276,525
Total Oklahoma	409,925	408,100	408,100	412,975
East Texas	396,448	.....	.....	396,646
West Texas	261,537	.....	.....	233,291
North Central Texas	140,810	.....	.....	135,657
Texas Panhandle	77,542	.....	.....	77,539
East Central Texas	86,154	.....	.....	80,893
Gulf Coast Texas	385,446	.....	.....	348,511
Southwest Texas	109,450	.....	.....	95,250
Total Texas	1,457,387	1,344,200	1,421,176	1,367,787
North Louisiana	70,735	.....	.....	69,475
Gulf Coast Louisiana	227,896	.....	.....	224,500
Total Louisiana	298,631	264,500	293,080	293,975
California	630,250	592,600	592,600	589,750
Kansas	149,350	158,100	158,100	147,650
Arkansas	70,145	64,500	70,147	69,125
Mississippi	6,760	5,800	.....	7,205
Eastern fields	108,700	109,400	.....	107,200
Illinois	438,039	392,900	.....	422,028
Michigan	62,187	63,200	.....	62,274
New Mexico	115,000	103,900	107,000	115,010
Rocky Mountain area	84,640	93,800	.....	88,190
Total United States	3,831,014	3,601,000	.....	3,683,169

Caribbean Oil Affected by Widening of War Fronts

By H. STANLEY NORMAN

The ending of Netherlands neutrality through the invasion by Germany brought the war front as regards oil to the Americas. Two of the world's largest refineries which refine approximately 75 per cent of the Venezuela's 600,000-bbl. daily crude oil production are located in the neighboring West Indies. In this article the oil significance of this and other war developments of past week are discussed.

N. V. Curacaosche Petroleum Industrie Maatschappij (Shell) refinery, Willemsted, Curacao

NEW YORK, May 13.—The invasion of Holland and Belgium by Germany has brought the war close to the shores of the American continent.

And oil is the prize!

Following Holland's declaration of a state of war with the Reich, British and French warships landed marines on the islands of Aruba and Curacao, Netherland possessions off the north coast of Venezuela and sites of two of the world's largest oil refineries.

The Allies officially announced that the landing of marines was for the purpose of preventing sabotage at the refineries and to support the local authorities. Washington was informed that the occupation would be temporary, terminating with the necessity.

The incident again emphasizes the importance of the Shell and Standard of New Jersey refineries on these islands in supplying vital petroleum products for the prosecution of the Allied war program. The landing force was supplemented by cruisers and warships of the Allied Navy anchored at strategic points for protecting the harbors of the two islands where 75 to 80 per cent of Venezuelan crude oil is refined.

The three refineries on Aruba and Curacao have a combined crude capacity of 500,000 bbl. daily and cracking facilities for handling approximately 335,000 bbl. daily, most of which is devoted to converting Venezuelan-produced oil into products for the world markets.

Invasion of the Low Countries by Germany placed an additional 121 tankers with a total of 940,000 deadweight tons under the immediate supervision of the British Admiralty. This now leaves the British Navy in direct command of approximately 55 per cent of the world's tankers and the same percentage of the deadweight tonnage.

A state of war has also been declared to exist in the Netherland East Indies which last year produced approximately 67,000,000 bbl. of oil and where there are seven refineries with a combined crude capacity of 212,000 bbl. daily and 36,500 bbl. daily of cracking capacity.

There are three refineries in Java, one in Borneo and three in Sumatra, all belonging to the Royal Dutch-Shell and Standard-Vacuum Oil Co.

Refineries in Bombed Area

Approximately 50 per cent of the French refining capacity is in the general area bombed or subjected to observation by German planes last week. Dunkirk and Calais were the only two coastline cities referred to by name in reports of German bombing raids, but the former is the location of a 10,000-bbl. per day refinery. (A list of French refineries, their locations and capacities was printed in The Oil and Gas Journal, p. 79, Dec. 28, 1939). The remainder of the total French refining capacity of 151,550 bbl. daily and 72,900 bbl. cracking equipment is located on the south and west shores of France, for the time being beyond the bombing raids.

Only one refinery of any importance and no production is within borders of the countries actually invaded by German troops. This is the refinery of N. V. de Bataafsche Petroleum Maatschappij (Shell) at Rotterdam which was bombed and temporarily held by German troops landed by air transport.

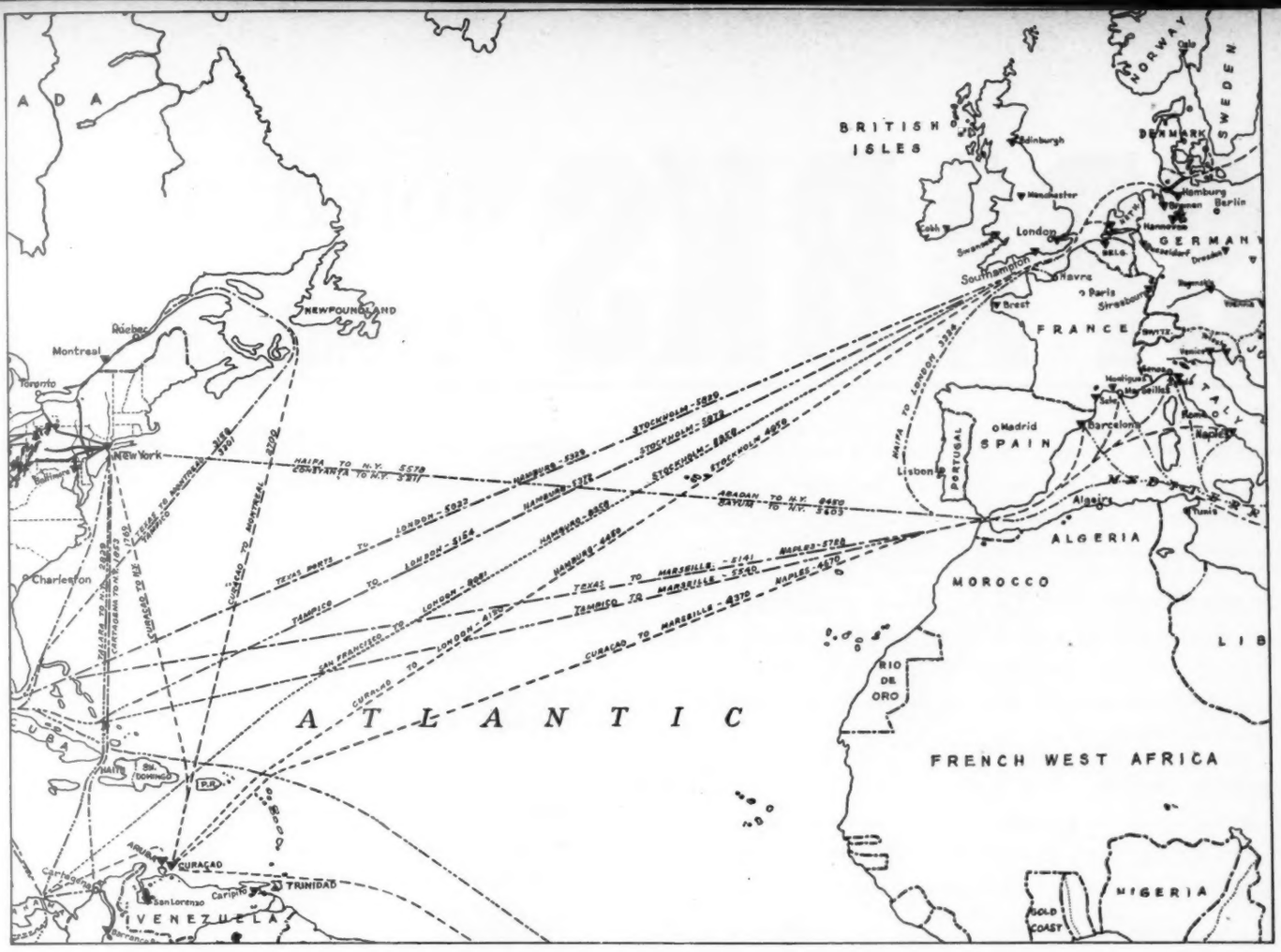
The British decision 2 weeks ago to remove its commercial vessels from shipping lanes of the Mediterranean contained even more significant potentialities for the international oil industry than last week's spread of combat. An already heavily burdened tanker fleet faces the possibility of having its efficiency reduced approximately 50 per cent if the British elect to continue to draw normal supplies from the Persian Gulf port of Abadan. The British denied last week that Gibraltar had been closed, but so far as could be determined in New York the prohibition against movement of British merchantmen, including tankers, through Mediterranean waters had not been modified.

The voyage from the Persian Gulf around the Cape of Good Hope on the southern tip of Africa and through the Atlantic to western Europe requires half again as long as through the Red Sea, Suez Canal and Mediterranean.

If British ships are excluded from the Mediterranean, movement of crude from the ports of Tripoli and Haifi, terminals of the Iraq pipe line, would be practically impossible. Since the order to clear the Mediterranean of British merchant marine craft is based primarily upon the threat of Italy joining Germany the potential changes in normal movement of oil from the Near East are so far speculative and may be indefinitely delayed.

Normal crude movement from the Kirkuk field of Iraq ranges from 70,000 bbl. to a little more than 80,000 bbl. daily. Soon after the war started the crude runs dropped to the low of the range but in more recent months have averaged nearer 80,000 bbl. daily. Most of the crude moved as such from the eastern Mediterranean ports goes to France with smaller amounts going to England and Italy.

Presumably tankers of registry, other than Brit-



Map showing the relationship of oil supplies of Netherland West Indies, northern South Africa and the United States to European markets

ish-controlled, are privileged to move in Mediterranean shipping lanes with no more than the usual risks of war. However, it is certain they would be under strict control from the Allied fleet and it would be necessary to establish the destination of cargoes to friendly hands. This speculation on the continued movement of tankers under neutral flags, however, holds only so long as Italy does not enter the war. Presumably the entire zone would be too dangerous to risk a voyage if the fighting shifts to the Balkans or the Near East.

By far the larger supply of oil customarily moves through the Mediterranean from the Persian Gulf where Anglo-Iranian Oil Co., Ltd., has its chief operation at Abadan, consisting of one of the world's largest refineries fed by a network of pipe lines to three large fields. The Abadan refinery has a rated capacity of 280,000 bbl. of crude daily and is a complete plant with cracking polymerization, alkylation and other facilities for producing aviation gasoline as well as lesser grades of motor fuel, distillate fuel, residual and other products. The movement from Abadan through the Suez Canal and the Mediterranean for western European destinations, chiefly Great Britain, averages near 200,000 bbl. daily. Other recipients of Iran petroleum under normal conditions included Italy, France, Germany, and the Balkan states.

Last week's general order barring British boats from the Mediterranean takes on added significance when it is considered that approximately 80 per cent of the oil moved from the Persian Gulf and Iraq was transported in tankers of English registry. Because of restrictions on civil consumption in Great Britain, France and other normally large consumers of near eastern petroleum, the movement from Abadan, Tripoli, and Haifa has probably shown a slight overall decline for the first 4 months of this year compared with the same period in 1939. Censorship restrictions, however, have prevented distribution of any details on the traffic. In view of the currency situation it goes without saying that Great Britain has obtained a maximum of needed supplies from silver countries and this has accounted, no doubt, for some part of the loss in petroleum exports by the United States.

To Turn to America?

It has been calculated that a round trip by a tanker from Abadan sailing around the African continent to reach western European ports will require about 45 days compared to less than 30 days using the Mediterranean route and excluding delays in port or in passing through the canal.

In view of this costly addition to time required to make the longer voyage, it is considered likely that Great Britain, France, and Italy will be compelled to turn to the Americas for greater portions of their petroleum requirements, if the war shifts to the Near East or to the Balkan countries.

While the petroleum supplies as they are now constituted are sufficient to support large-scale military operations by the Allies in the Near East there is no assurance that the reserves can be protected and preserved in serviceable order. All fields in the Near East and Rumania are reported to be mined for instant destruction if in danger of falling into enemy hands.

In addition to the reserves in Iran and Iraq there is current production of about 45,000 bbl. daily from Saudi Arabia and Bahrein Island, around 15,000 bbl. daily in Egypt and 180,000 bbl. daily in the Netherland East Indies, part or all of which could be used in a near eastern campaign. Bahrein Petroleum Corp. operates a refinery on Bahrein Island, handling 20,000 to 25,000 bbl. daily, and a small plant is under construction at Ras Tanura on the Arabian mainland. Egypt has two refineries with combined capacity of 17,000 bbl. daily. One is operated by Anglo-Egyptian Oilfields, Ltd., a Shell subsidiary, and the other of 2,000-bbl. capacity is operated by the Egyptian Government's petroleum department.

Arend Petroleum Co. (Canadian Eagle) near Orangestad, Aruba

SPARKS . . . FROM THE NEWS

BASIN STRIKE: A new spurt in drilling and leasing activity in the Forest City basin is forecast, now that the second producer in southeastern Nebraska has been brought in for more than 300 bbl. of oil daily, surpassing output of the discovery well.

IN THE CRADLE: Miami County, Kansas, called the cradle of the Mid-Continent oil industry as the result of discovery of oil there 80 years ago, is still active with an air-repressuring and two water-flood projects under way and a recently discovered gas field being developed.

KANSAS OUSTER: While denying malicious intent, Kansas' attorney general is continuing to file ouster suits against oil-royalty companies, chiefly with Oklahoma residence, who haven't qualified to do business in Kansas as a company.

EXPLANATION: The fact that Germany is at least 60 per cent short in oil supplies while the Allies have access to the world's oil markets through control of the seas is as logical an explanation as any for the Reich's decision to stake all on a quick and widespread offensive.

WARMING UP: The fiftieth oil well has been completed in the Tinsley field, Yazoo County, Mississippi, extending the productive limits to the north. Offset and outpost activity increases in the state's second field, Pickens.

PROPHECY: A combination airplane and motor car is coming, Henry Ford says. And folks don't laugh at Henry's ideas any more.

PRECEDENT: Another precedent has been set in the opinion of a federal court in Arkansas, that sand thickness should be taken into direct consideration in the allocation of production in a gas-driven oil field.

ARMISTICE: All is quiet on the British Columbia gasoline front, following an agreement between the fuel board and refiners.

QUALITY MARKET: One of the larger air-line transport companies announces it will buy 10 new 41-seat planes to handle the business expected in 1941. Another outlet for high-octane fuel.

MECCA: This week and next all roads lead to Tulsa. (Reason: See Pages 85-92, and 166-290, this issue.) Over 1,500 engineers and salesmen will explain and demonstrate 500 exhibits of the International Petroleum Exposition starting Saturday.

NO CHANGE: The oil industry, which has had a week now to get its breath following the Supreme Court's decision in regard to the Madison case, hasn't changed its mind about the matter. It is still bewildered as to the definition of competition.

EVALUATING WAR: In evaluating the significance of recent war developments it is necessary to keep in mind that four European countries have lost their neutral status, which will affect oil shipments to them from this and other countries.

ACTION: Representatives of independent producers meeting in Wichita Falls, Tex., Monday condemned the excessive allowables of the Texas Railroad Commission and are going to do something.

DISCOVERY: The rate of discovery in Oklahoma in 1940 continues to soar, wildcat strikes in Pottawatomie and Okfuskee counties being recorded last week.

BLITZKRIEG: Texas battle also is getting hot. One candidate for railroad commissioner has a slogan: "Elect a technician instead of a politician," and warns against "false issues and tin-pan hullabaloos."

NIGHT SCENE IN ACTIVE ILLINOIS AREA . . .

Gas flambeaux in Salem field. These views have brought wide comment from rail and car travelers passing through that section

Little Known of Geology in Fort Worth Basin Play

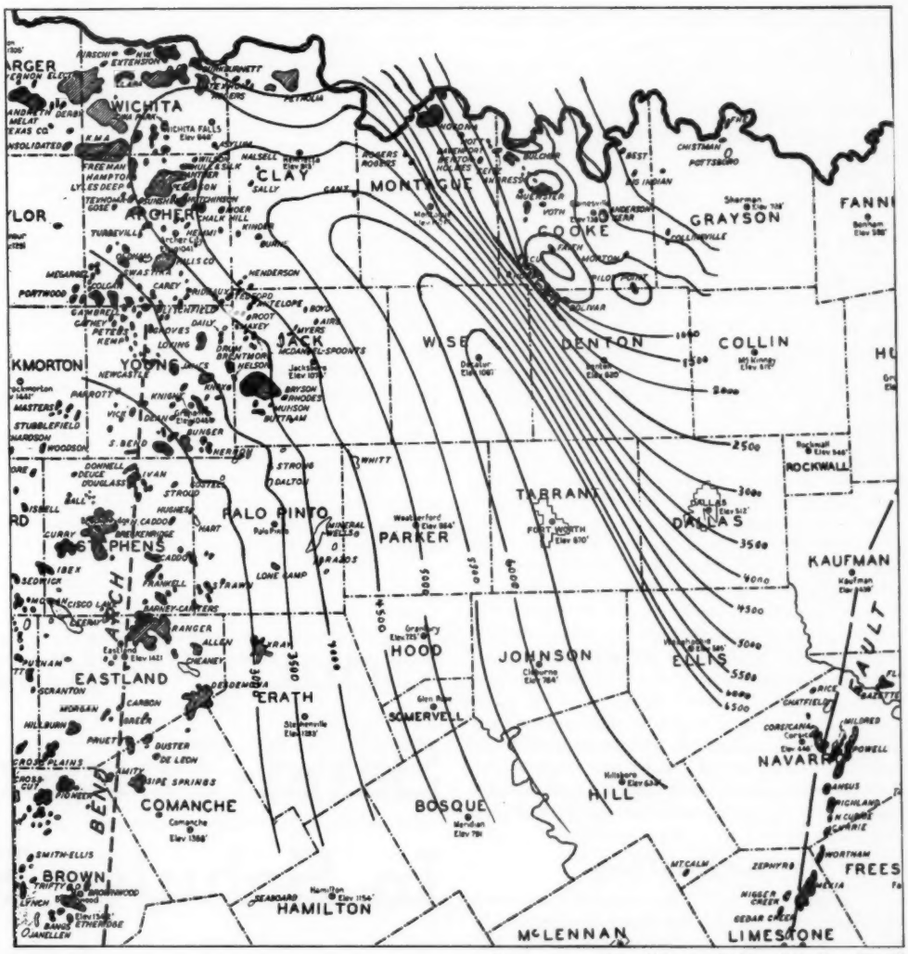
By R. MARNE SANFORD

FORT WORTH, Tex.—North Texas has been an oil-producing district for the past 25 years; however, it was not until about 2 months ago that oil men began seriously to consider oil possibilities from structures within the Fort Worth geosyncline.

Deep production in North Texas had its first impetus with the K.M.A. field. Six months ago when deep 4,000 and 5,000-ft. discovery wells were being completed almost monthly in Clay and Montague counties few operators associated the discoveries with the Fort Worth basin or syncline. (Fig. 1).

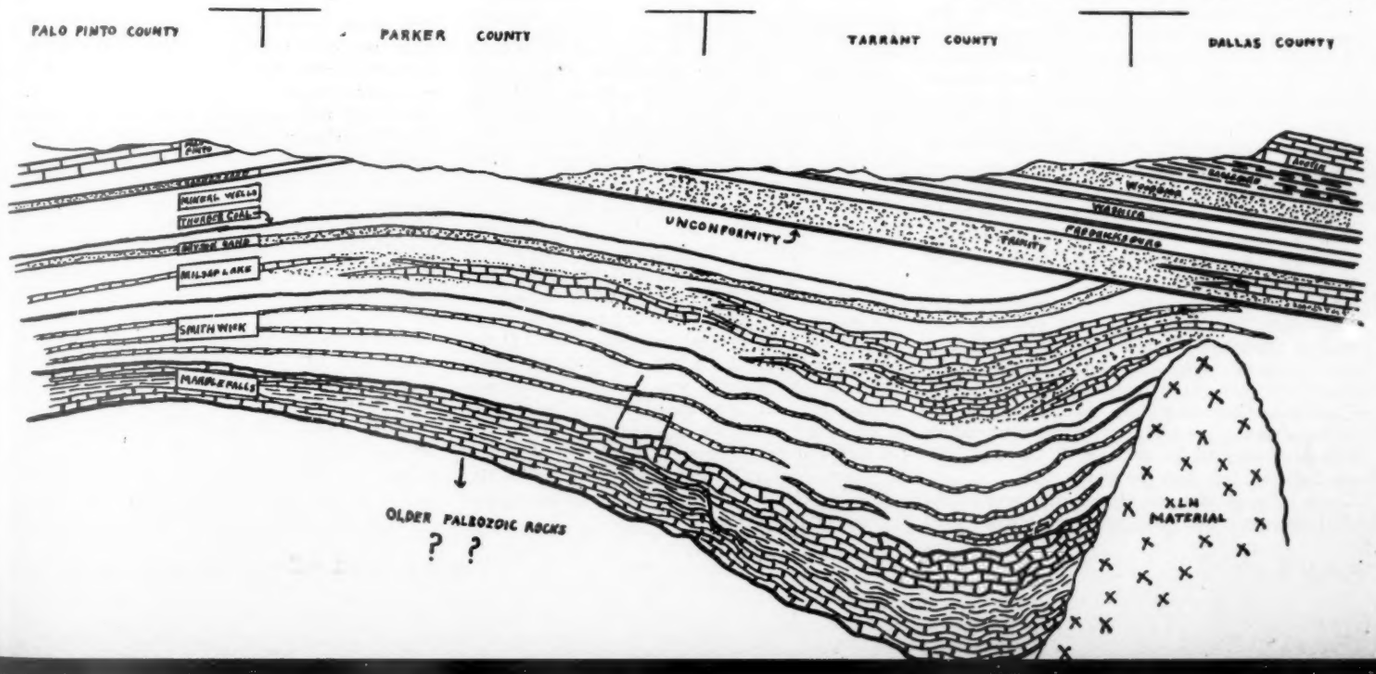
Then, when two new discoveries were made in Montague County in early March, one of the greatest lease plays of recent years developed. Major companies and independent operators alike moved into Clay, Montague, Wise and Tarrant counties and even as far south as Jackson County. Wildcat acreage, as much as 50 miles from any production, brought as high as $5 an acre. It was recently estimated that nearly a score of seismograph crews had moved into the Fort Worth area, 11 of which were working in Tarrant County.

The Fort Worth basin is a regional trough or syncline which extends from Clay and Montague



Base map courtesy Zingery Oil Map Co., Fort Worth

Fig. 1—(Right) Structure contour map of the Fort Worth basin. The map is a slight modification of the state geological map published by E. H. Sellards, director of the bureau of economic geology at the University of Texas. The contours are on the top of the Ellenburger lime and are hypothetical, as they were projected down to the horizon from certain geologic features known to exist in the Upper Paleozoic rocks of the area. Fig. 2—(Below) Cross-section across the Fort Worth basin from central Dallas County on the east to central Palo Pinto County on the west. As no deep tests have been drilled in the southern part of the basin, all geologic interpretations below the Cretaceous in Dallas and Tarrant counties are hypothetical



counties, south through Wise County and southeast through Tarrant County. The axis of the basin roughly parellels the Muenster arch against which its sediments are truncated on the east side. (Fig. 2).

The entire play which the area has experienced during the past months is based on the assumption that commercial oil production will be obtained throughout the southern parts of the basin as it has been obtained around the northern rim.

Regional Geology

The basin itself is bounded on three sides by major structural features. On the north it is terminated by the Red River uplift running along the Texas and Oklahoma boundary line. The western side of the basin is the Bend arch coming out of the central mineral region of Texas and extending north through West Central Texas as far as Young and southern Archer counties. On the east side of the basin is the structural feature most intimately associated with the basin itself, the Muenster arch. This arch extends in a southeasterly direction from northern Montague County down into Dallas County and perhaps farther south. The core of this arch is an old buried mountain range probably of early Paleozoic age.

The most recent folding of all three of the flanking structural features is certainly post-Pennsylvanian since sediments of this age are folded and disturbed over the arches. The conditions in the basin prior to the Pennsylvanian are entirely unknown, however, following the movement of the Bend arch a long and somewhat narrow basin or trough developed throughout the area. The sediments in the basin are probably nearly all Pennsylvanian and of about the same type as found in West Central Texas.

The surface geology of the area varies in different counties, with Pennsylvanian, Permian and Cretaceous age dip about 50 ft. per mile to the contact of the Cretaceous and Pennsylvanian rocks runs northward from Hood County, through central Parker and western Wise, and curves eastward through southern Cooke County. Rocks of Cretaceous age dip about 50 ft. per mile to the southeast and strike in a northeast-southwest direction. The Pennsylvanian and Permian contact runs across central Montague and central Clay counties, rocks of both Permian and Pennsylvanian age dipping to the northwest at about 40 ft. per mile.

Conditions of Basin

In spite of the fact that no deep tests have been drilled in the area, certain fairly definite conclusions can be drawn concerning the basin. Contrary to previous opinion the axis of the basin is not located midway between its flanks but lies considerably closer to the truncated eastern side of the basin than to the center. The buried mountain ridge on the east of the basin was once referred to as granitic, but is better defined as a gneiss—which may be either a metamorphosed igneous or sedimentary rock. This conclusion is based on examination of the cuttings from the so-called granite encountered by Mark Ralley in a test drilled last year just south of the town of Grand Prairie in extreme western Dallas County.

The eastern limb of the basin is thought to curve up sharply against the crystalline mass while the western limb forms a broad gradual rise over the Bend arch. The Mark Ralley test indicates that the lower members of the Strawn series arch over the crystalline mass. This test is thought to be about on the top of the mass and encountered several hundred feet of Millsap Lake section. A test drilled several years ago near Arlington in eastern Tarrant County found some 800 ft. more of Millsap Lake section than the Ralley test.

It is believed that the Strawn members in the southern part of the basin will probably be found at about 6,000 ft. They are found at 3,000 to 3,500 ft. in southern Clay and southern Montague counties. The Bend series is at about 4,500 to 5,000 ft. in the northern part of the basin and is expected to be at 7,000 to 7,500 ft. in the southern part.

It is not known whether older Paleozoic or pre-Cambrian rocks occur immediately below the Pennsylvanian throughout the basin. In Montague County tops have been called for the Simpson sand, the Ellenburger lime and the Mississippian lime, none of which are definitely known to exist but all of which could very easily be present.

Folding and Faulting

Although only vague indications of folding and faulting are known at the surface, geologic interpretations of the structural conditions in the basin strongly indicate considerable folding and faulting.

The folding is probably general throughout the basin as a result of compression of the sediments. The folds are believed to be of the Appalachian type, that is, long narrow belts relatively parallel to one another and to the axis of the basin itself. A known surface high extends from northwestern Johnson County into the Benbrook area of southwestern Tarrant County. This is the only known surface reflection of the folding at depth.

The compression which caused the folding probably also developed some faulting in the more tightly folded parts of the basin. Theoretically more faulting would be found along the eastern side of the basin and near the crystalline mass than along the broad western side.

There is probably little folding or faulting near the northern rim in Clay and Montague counties. Production in the fields already discovered is mainly in stratigraphic traps and local structures.

There is one very strong indication of faulting in eastern Tarrant County. This was found some 15 years ago by geological surveys made in connection with the planning of the dams for Lake Worth and Eagle Mountain Lake. A structure contour map on the top of the Walnut shell bed, at about 500 ft. in the eastern part of Tarrant County, reveals the presence of a sudden increase in dip which is interpreted as a reflection of a fault at depth. A number of core holes through the Cretaceous of Tarrant County made at that time definitely established the existence of the Fort Worth basin.

Oil Possibilities

If production is found within the deeper parts of the basin, it will probably also occur on local structures or in stratigraphic traps. Exploration for these hypothetical pools will be difficult because of the great unconformity between the surface rocks and those at depth. Sand and lime lenses and the pinching out of beds as well as the intergradation of limes, shales, and sands, add to the complexity of geologic and geophysic exploration.

With the most active part of the leasing campaign almost subsided, major companies and independent operators are attempting to determine the structural conditions under the many large blocks which they have acquired. There is great lack of agreement concerning the northern part of the basin where deep tests are being drilled, and almost no geological information concerning the southern part of the basin. Many deep wildcat tests are at present drilling throughout the northern part of the basin and several are scheduled for the coming months in both Wise and Tarrant counties. The results of these tests, whether or not they succeed in developing commercial oil production, will prove invaluable in the formation of an accurate picture of the basin as a whole.

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Court Majority Favors Sand-Thickness Factor In Schuler Proration

By GEORGE WEBER

EL DORADO, Ark., May 9.—The suit of Lion Oil Refining Co. v. the Arkansas Oil and Gas Commission regarding production allocation in the Schuler field ended today with a surprisingly early rendition of opinions by a three-judge federal court in El Dorado. The suit, involving consideration of sand thickness in fixing well allowables in the gas-driven Jones sand reservoir embraced many novel features, and was widely regarded for the precedents which it would impart.

In handing down its opinions, the majority of the court upheld Lion Oil Refining Co. in concluding that sand thickness should be included in the allocation formula. The injunction from enforcement of the present order was denied at this time, however, and the full sand-thickness factor asked by the plaintiff was modified in the suggestion that only a weighted fraction be adopted.

The court called for a preparation of findings of fact and conclusions of law conforming with its expressions, to be presented by the parties May 26, at which time it will facilitate an appeal and review of the order, if desired.

The case, concerning a gas-driven oil field currently prorated on a per-well basis of acreage multiplied by bottom-hole pressure, was guided by no precedents. Recent cases in which a sand-thickness factor was sought for allocation calculations have concerned reserves with active water drive, allocated on the basis of different formulas.

The Schuler field was discovered prior to enactment of the present state law providing for conservation of oil and gas. Its early history was one of unlimited flow in the first-developed southeast section, which gave rise to a pressure gradient from northwest to southeast, generally along the axis of the field. This gradient, although decreased somewhat following production allocation in the field, still exists in a 520-lb. differential between the highest and lowest bottom-hole-pressure wells in the field.

About a year ago, Lion Oil Refining Co. and Phillips Petroleum Co. asked that an allocation formula be adopted, based on an acre-foot-pound factor, directly proportioning well production to acreage, sand thickness, and bottom pressure. The

commission, on the basis of the testimony presented, did not see fit to grant it, but did adopt an acre-pound factor, to replace the former 50 per cent acreage plus 50 per cent bottom-hole pressure formula. Subsequent requests by the companies to adopt the formula concerning sand thickness have been denied, and Lion Oil Refining Co. earlier this year brought suit against the commission on the issue.

In entering complaint against the commission, the company held that the allocation order was unfair as it affected the Mayfield lease, located in the thick-sand section of the field. The method of proration, it contended, allowed migration of oil from under that lease toward the thinner-sand section of the field.

Much Data Presented

The plaintiff's case was based on the proof that migration did exist in the field, constituting waste, and that it took place away from the Mayfield lease was contended from interpretation of its data. The case was based on the testimony of Dr. Hermann H. Kavaler, research engineer for Phillips Petroleum Co.; George Vandaveer, general superintendent of Midstates Oil Corp.; Dr. E. A. Stephenson, of Kansas University, and Warren Weeks and E. D. Klinger, geologists with Phillips Petroleum Co. and Lion Oil Refining Co., respectively. On the basis of their estimates, it was pointed out that certain leases in the thin-sand section of the pool were producing four times as much oil per acre-foot as the Mayfield lease.

While the impossibility of completely preventing migration and the fairness of the present order were admitted by witnesses for the plaintiff, they presented opinions that a more equitable allocation would result from inclusion of the sand-thickness factor in the formula.

O. C. Bailey, commission chairman, and Stanley Gill, of Houston, and E. V. Foran of San Antonio, consulting engineers, offered testimony for the defense. In giving the history of the commission's work, Mr. Bailey stated that adoption of the acre-foot-pound basis of allocation would, in his opinion, have retarded drilling on edge leases, due to low allowables, and would have deprived operators and other interested parties in those sections of their rights.

The extreme variations in porosity and permeability of the Jones sand between offsetting wells, and between sections of the sand in the same wells were cited in defense testimony as rendering sand thickness as such of little use in determining oil in place. The same irregularities of the Jones sand were used to attack estimates of oil reserves by lease, upon which the plaintiff's contention of percentage allowable oil in place for the Mayfield lease as compared with other leases was based.

It was pointed out that the per cent of estimated oil in place under the Mayfield lease with respect to the total field estimate and the per cent of Mayfield allowable with respect to the total for the field, based on the plaintiff's estimates, differed less than 1 per cent, and that reserve estimates could not be assumed with a tolerance of less than ± 25 per cent. The defense also contended that from migration studies of the lease in question, a pressure differential from the north and west more than offset the differential to the south and east as regarded oil migration, with a net estimated migration into the lease instead of away from it.

The pressure factor, to which allocation has been directly proportional, was held as indicative of sand thickness, permeability, and other pertinent factors, and as such was purported to reflect the factor of oil in place to a reasonable degree. Reduction of the pressure gradient over the past year during which the acre-pound factor was used was also cited.

Opinions Vague

In the matter of suggesting use of sand thickness in the formula, the majority opinion was vague. It stated that full weight given to sand thickness was considered too much, which would give the plaintiff an excessive amount of oil, but suggested the application of a 25 per cent weighted sand-thickness factor in the formula.

Commission engineers are confused by this statement and it is not understood whether the body should allocate 75 per cent of the field allowable by the acre-pound formula and the remaining 25 per cent on the sand-thickness basis, or whether some other method is suggested.

The majority opinion, delivered by Judge Woodrough, follows in part:

Majority Opinion

"We conclude that the commission, or board, by adopting and promulgating an order relative to the allowables to the different wells and operators in this Schuler field have infringed upon this plaintiff's rights by failing to include directly in the factors that they have included in making up their ratios and allowables, the element of the thickness of the oil-bearing sand underlying the plaintiff's property.

TWO OPINIONS

The majority opinion was read by District Judge Harry J. Lemley, of Hope, Ark., in which he concurred with Circuit Judge Joseph Woodrough, of Omaha, Neb. They held that Lion was being unduly deprived of property in the field through the commission's current order and held that sand thickness should be included in the allocation formula. District Judge Hearisill Ragon, of Fort Smith, Ark., dissented in a separate opinion, stating he considered the commission order reasonable in every respect.

"We think that that failure to include that as a substantial factor in their formula upon which the allowables are based, that they deprive this plaintiff of property without due process of law, and that their action in that regard comes within the legal description of being arbitrary; not implying any personal arbitrariness upon the part of the members of the board, but we think it comes within the definition of arbitrariness that's denounced or that brings us against the Constitution and works out in the deprivation of property against constitutional rights.

"We don't fail to observe the claims of the defendants that by their taking into consideration the bottom-hole pressure they do give some remote and indirect effect possibly or intend to do so to the thickness of the oil-bearing sands beneath the plaintiff's property, but not so as it seems to us as is necessary in order to give this plaintiff its reasonably fair proportion of the recoverable oil underneath its land.

"The majority of the court goes further and concludes that in making up a computation that shall include the factor of sand thickness, that a weight in the total computation, a weight equal to about 25 per cent, or not less than 25 per cent, in the total computation ought to be given; the weight of effect, I mean, should be given to the sand-thickness consideration.

"Would that be feasible to work it out on that basis? As it is now, you have a factor of acreage; you have a factor of bottom-hole pressure; we think you should add a further factor based on sand thickness. We think that in that sand thickness, not in numbers, you couldn't make it 25 per cent, of course you wouldn't get out right, but in the weight; a weighting of 25 per cent ought to be put in there based on sand thickness. Unless that's not feasible, and then it may be suggested in some other form.

"The formula you requested was bottom-hole pressure times acreage times thickness; sand thickness; and our idea was instead of times thickness, which we think is too much, and would give this plaintiff a disproportionate or maybe an excessive amount of oil; instead of the whole of thickness, thickness only ought to figure; we had it vaguely in mind, to the extent of 25 per cent of the total weight of the formula.

"Maybe I didn't mean that, because those acres are so many. Our real thought was that the whole thickness of the sand wouldn't necessarily carry the same amount of oil. It seems to in the thinner area of sand, but it does apparently not in the thicker sand depth.

"That being so, we do not think that the formula ought to be acreage times bottom-hole pressure multiplied by the full amount of the sand thickness. We thought that when you got to introducing the element of sand thickness, it should only be regarded to the extent of 25 per cent of the sand thickness as a factor in working it out.

Dissenting Opinion

The dissenting opinion delivered by Judge Ragon follows, in part:

"I realize that any order you would make in this whole field, somebody is going to suffer that oughtn't to suffer is the way I have reached the testimony in this case and that conclusion. I think the commission found this field, so far as pressure was concerned, in very bad balance. This unbalance necessarily brought about the migration which has been variously estimated here, but I think the commission in the promulgation of its rules undertook to correct that. And it is undisputed in this testimony that they reduced that pressure gradient in 1 year's time from 720 lb. down to around 500 lb. They took a pressure gradient there that it took 4 years to put into bad condition, and they have adjusted it at least one-third in the period of 1 year. I don't think a single witness testified that that was an unreasonable rule.

"I take the position that the rule that they have made here is a reasonable rule without that. There isn't a bit of testimony, that amounts to a snap of a finger, that shows that there is any wasted energy out there, save and except that which comes from migration, and there is not a respectable bit of testimony that attempted to measure that amount of waste.

"I don't think, further, there has been any irreparable injury in this case. Under the testimony here, unquestionably Lion Oil company owns about 45 per cent of the recoverable oil in that pool, under its properties. There is about 4 or 5 per cent of it that's under this 100 acres. To effectuate this rule; effectuate the majority opinion, you will doubtless permit several units of Lion Oil Refining Co. to benefit from the present allowables that they wouldn't otherwise benefit were it not for the present rule; at the same time you will permit them to invalidate this rule and get the advantage that would come to them when you take into consideration the computation of sand depth in determining this allowable."

EDITORS CRITICAL OF MADISON DECISION

NEW YORK TIMES

The decision as it stands obviously leaves our whole antitrust attitude and policy in a chaotic state. The evidence seems clear, not only in the whole record of the Government-approved N.R.A. codes but in correspondence and reports of the secretary of the interior, for example, that price "stabilization" operations of the oil companies were undertaken with the knowledge, approval, and encouragement of federal officials. The Supreme Court majority does not deny this.

The charge of which the 12 oil corporations and 5 persons were found guilty was of forming a concerted movement to buy "distress gasoline" from independent refiners in 1935 and 1936. But the Federal Surplus Commodities Corp. is a branch of the Government set up for the very purpose of buying up so-called surplus farm commodities to remove gluts and support prices, and this is considered highly patriotic work. As if that were not enough, farmers are induced by tempting cash offers from the Government to combine to bring about a pro rata restriction of acreage. The Government does still more to hold up farm prices by extending "nonrecourse" loans to farmers and, if necessary, keeping the equivalent of an entire year's crop off the market to raise prices. Milk farmers, again, are permitted and encouraged under various laws to combine to form "bargaining agencies". to get better prices.

It is impossible to detect in all this any consistent or well-thought-through principles. The Supreme Court throws out a hint in declaring that if any shift in antitrust policy is to be made from what the court at present interprets that policy to be, "it must be done by the Congress."

NEW YORK SUN

The statutory structures of the nation and many of the states embody enactments regulating price fixing which gravely complicate a problem which is inherently of great complexity.

NEW YORK HERALD-TRIBUNE

The average layman, we imagine, will join Justices Roberts and McReynolds in their dissent from the decision of the Supreme Court in the Midwest oil case. He will agree with them that the court's traditional "rule of reason" in interpreting the Sherman Act was applicable in this instance, and he will not forget the extralegal argument that the defendant oil companies and their officers were encouraged in their so-called conspiracy to raise prices by the Government itself. . . . There have been splits before among the members of our highest tribunal to equal this one, but none, we venture to say, to surpass it.

WALL STREET JOURNAL

The Supreme Court in its latest decision apparently closes the door to any form of agreement which lessens competition. Are we to look forward to a state of utterly free competition, the only result of which can be to put the "little fellow" out of business? . . . . But how are we to know restraint when we seen it save by the use of reason? The fundamental problem that faces us in this entire matter is how to avoid the Scylla of monopoly by agreement and the Charybdis of monopoly by competition, and after half a century's experience with the Sherman law of 1890 we appear to be no nearer a solution than we were when we enacted the law. So it seems at least to the lay mind.

KANSAS CITY STAR

As to what is reasonable or unreasonable under the antitrust laws it is in large part a matter of legal opinion. Furthermore, the Guffey Coal Act (which in its revised form has not been invalidated) sanctions price fixing which does raise prices. Looking at all these things, present and past, the oil companies doubtless felt they were within the law. A new day and a virtually new Supreme Court contribute another view of it. But further clarification of the laws bearing on such cases must be expected.

DALLAS NEWS

Nowhere in the majority opinion, apparently, is it held that the defense of the group lacks substance. That plea was simply that while the law might have been violated, the act was in the public interest. . . . Everything that has been done in the name of oil conservation has been done with the vitally necessary profit motive first, although prorated production and other scientific devices to avoid flooded markets do assure a greater recovery of petroleum deposits. . . . Certainly in the future any industry would be foolish to act cooperatively in the general interest if the Government is to follow up with a Sherman Act bludgeon. The principal remaining inference to be drawn is that the Sherman Act needs revision.

WASHINGTON STAR

The broad language of the decision opens an interesting field of speculation in connection with the ruling shortly expected from the court on the applicability of the Sherman Act to labor, for at one point Justice Douglas declared that "any combination which tampers with price structures is engaged in an unlawful activity."

OIL CITY DERRICK

Decision of the Supreme Court to uphold the conviction of 12 major oil companies and five individuals charged with violation of the Sherman Antitrust Act is expected to start a wave of antitrust suits that will leave little if any part of the oil industry untouched. The court sustained the Justice Department's charges by a vote of 5 to 2 and, it is significant to note, the dissenters were two of the veterans of the court, Justices McReynolds, the oldest member, and Roberts, one of the five who antedate the Roosevelt period.

Further antitrust action affecting the oil industry is certain to follow the Justice Department's victory in this case. For several years the department has been investigating oil marketing on both the West and East coasts and has under consideration another suit that would force divorcement of major companies from marketing.

TULSA TRIBUNE

This same Supreme Court has approved complete price fixing under the Guffey Coal Act. It has approved the federal purchase of cotton, wheat, and corn in an effort to stabilize prices in those commodities. It has seen no reason to object to government purchases of gold and silver in order to fix the prices of those metals. But it convicts the oil companies of doing the same thing. . . . The fact that the oil companies were brought to trial for doing what the Government itself had openly done and is still doing can only be explained by the New Deal's eagerness to undermine public confidence in any industry upon which its power-seeking bureaucrats had fixed hungry eyes.

CLEVELAND PLAIN DEALER

Spokesmen for the defense insisted that the oil men were merely doing of their own volition what the codes in N.R.A. days had sought to require the oil and every other industry to do. Whatever the legal merits of this contention, it had much common sense behind it.

The decision puts new force in the Sherman Act. Justice Douglas is specific in his declaration that under the Sherman law any combination "formed for the purpose, and with the effect, of raising, depressing, fixing, pegging or stabilizing the price of a commodity in interstate or foreign commerce is illegal per se."

DENVER POST

The decision amounts to a denunciation of the system which the New Dealers attempted to fasten upon the nation through N.R.A. That measure not only encouraged but it undertook to compel price-fixing agreements.

WICHITA FALLS TIMES

If we understand the court's decision, it disposes not only of the question of motive, but sets aside the 1911 rule. It says to the oil companies, in effect, first, that their motive was not as high as they affected, and second, that even if it be assumed that nothing of selfishness prompted the agreement, it was still unlawful because it fixed prices. The decision serves notice that henceforth good intentions won't count in antitrust cases.

NEW YORK JOURNAL OF COMMERCE

The Supreme Court decision upholding the Madison convictions demonstrates anew the need for the redrafting of the antitrust laws, to make more explicit what may and may not be done under its provisions. The fact that the highest court has shown vacillation in interpreting the statute's very broad prohibitions of restraint of trade and monopoly makes the need for precision in the act itself all the greater. . . . The latest decision illustrates anew the desirability of making a statute more precise where judicial interpretations vary from time to time, as has been the case with the Sherman Act's prohibition of restraints of trade.

CHICAGO DAILY NEWS

The tenor of recent Supreme Court decisions warrants the expectation that the Supreme Court is at the beginning of another one of its long-time trends. It is reasonable to expect less effort to modify the plain intent of legislative enactments, even when the court may think that such would be desirable. Congress must no longer expect the Supreme Court to protect the country from congressional mistakes. The Sherman law was the first definite step toward the rectification of those abuses, and in retracing its steps back to that statute the Supreme Court is probably acting wisely.

The OIL AND GAS JOURNAL

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Ending Competition

The Supreme Court of the United States in reversing the Circuit Court of Appeals' Madison case findings, which had received such favorable comment both within and outside the oil industry, has added to the confusion in regard to the relationship of business and Government.

It has not given industry a guide by which it may chart its future course, and if official Washington is to be taken seriously, it has given Government a mandate for further persecution.

By way of review, the evidence revolved around gasoline buying programs inaugurated under the N.R.A. petroleum code and continued on a voluntary basis after that act had been held illegal by the Supreme Court.

The net result of the application of the programs was to bring about a more equitable distribution of markets, with prices in line with cost, for all those who had part in the manufacture and distribution of motor fuel.

It was never alleged that the action brought wide profits to the participants, nor was there any evidence that higher prices to consumers resulted.

The Circuit Court held the lower court had erred in that the jury had not been instructed in regard to the reasonableness of the action, and should have heard certain evidence of the defendants which was withheld.

There were other phases, such as the jurisdiction of the court which tried the case, the conduct of the Government's counsel during the trial, the use of grand-jury transcripts, and the fact that the action complained of had been forced upon the industry during the N.R.A.

The Circuit Court and a minority opinion of the Supreme Court held that some of these developments were reversible error in themselves.

While it is difficult for the defendants in this case and for those in the oil industry generally who are familiar with the facts to disregard these points which were held not vital by the highest tribunal, the decision in establishing a new conception of the meaning of the antitrust act is the outstanding development.

The Supreme Court held that the rule of reason, as applied to the reasonableness of an action, has no bearing where prices are affected, the conclusion being that every cooperative activity, regardless of motive or effect, is per se a violation of the law in its present form.

The danger of such a decision, in relation to competition in the oil business, is readily apparent. Justice Roberts in his dissenting opinion pointed out:

"There was substantial evidence that all the defendants agreed to, or did, was to act in concert to eliminate distress gasoline; that such gasoline was a competitive evil in that it tended to impair or destroy normal competition. There was no evidence that they agreed to, or, in fact, did, fix prices."

The principal beneficiaries were a large group of independent refiners who through the years have had a large part in making the oil industry truly competitive. Developments since this trial indicate clearly that the law, as interpeted in the Supreme Court decision, cannot help but weaken their industrial position.

This decision, in the final analysis, has a direct bearing on competition not only in the oil business but in all business. It establishes fixed rules of business conduct which are detrimental to the groups for whose protection the antitrust laws were enacted. Because it is unsound, it will in time be detrimental to the larger and more strongly fortified units.

If not corrected by legislative action, it will prove to be another excuse for an extension of governmental control and a threat to free enterprise in whatever form it establishes itself.

STATE CAPITALS...

TEXAS

HIGH STOCKS OF CRUDE AND GASOLINE in Texas may necessitate another 15-day shutdown of oil fields, starting about May 27, Railroad Commissioner Jerry Sadler warned last Saturday. With these stocks piling up, Mr. Sadler said, "many major companies have reported they will have to cut nominations for Texas by 25 per cent or more in June." Unless conditions change immediately, he thought it would be necessary for the commission to shut down fields the last 5 days of May and the first 10 days of June. Chairman Lon Smith observed that additional shutdown days, or an allowable cut, might be necessary unless conditions changed, but added that the commission would await developments as reflected at the state-wide proration hearing to be held on May 20.

Commissioner Ernest Thompson was not in accord with the views of the other two commissioners, however, and reiterated his prediction that if the commission would issue a 90-day order based on the June market-demand estimates of the Bureau of Mines a price increase of 15 cents per barrel might be forthcoming before August 1. He saw no necessity for a 15-day shutdown based on present conditions, pointing out that premiums are being paid for crude in several fields, production is being greatly reduced and consumption is approaching the peak period of the year.

UNDERPRODUCTION OF ALLOWABLES, upon which the Railroad Commission is depending to some extent to hold Texas' production near the Bureau of Mines figure, has been increasing this year, John E. Taylor, chief supervisor of the commission, reported last week. In setting the current month's total allowable the commission estimated underproduction at 4 per cent, or sufficient to reduce overproduction of the bureau's figure from 72,161 bbl. to only 15,507 bbl. daily. Mr. Taylor, however, reported total production figures during February showed underproduction to average 4.4 per cent of the total allowable, but in March it was even more below allowable. Total underproduction in February, he said, was 1,819,489 bbl., and in March was 2,531,162 bbl. with total production for the month placed at 48,120,000 bbl. Thus if underproduction this month continues at the high rate indicated in March, Texas' daily production this month will be averaging only about 1,340 bbl. per day over the bureau's figure.

MICHIGAN

JAMES C. GRAVES, OF SAGINAW, president of Basin Oil Co., has been appointed to the Michigan Oil Advisory Board by the state Conservation Commission, which reappointed Kurt Decousser of Lansing. They will serve 3-year terms.

OKLAHOMA

SPACING ON THE BASIS of one well to 160 acres for the Deese deep-sand zone of the Chickasha gas field of Grady County is sought in application of the Magnolia Petroleum Co. and others and set for hearing by the Corporation Commission for May 24.

The order would cover all of Sections 14, 15, 22, 23, 26, 27, 35 and NE and SE of Section 34-5n-8w, and Section 2 and NE and SE of Section 3-4n-8w, a total of 5,780 acres. Petitioners other than Magnolia are the Carter Oil Co. and Oklahoma Natural Gas Co.

Carter Oil Co. and others opened the new zone on April 11, 1939, at a well drilled in SE SW of Section 26-5n-8w. The test was drilled to 6,620 ft. and upon completion showed for 10,000,000 cu. ft. of gas a day, with bottom-hole pressure of 1,880 lb. No other test has been drilled to this horizon.

The proposed order also would cover the zone opened by the Sinclair Prairie Oil Co.'s No. 4 Charlson, in NE NE SE of Section 22-5n-8w, which was completed early in November last year for 72,000,000 cu. ft. of gas a day from sand at 3,941-69 ft. Casing was set at 3,707 ft. The Charlson was an old gas producer in the field's normal zone at 2,398 ft.

KANSAS

KANSAS CORPORATION COMMISSION, it will be recalled, was temporarily restrained by the District Court of Cowley County, and a U. S. District Court, from restricting the production below the quantities specified by the courts in the Hittle, Weathered Lansing-Kansas City, and Weathered Mississippi lime pools of Cowley County and the Otis pool in Rush and Barton counties. Now the commission announces that if any or all of the restraining orders are declared illegal or void, or otherwise dissolved, the commission will charge as overage that portion of the production of each pool which is in excess of the allocation heretofore made against said pools, and that this overage will have to be made up from current allowables.

IT IS ILLEGAL to do business as a company in Kansas unless qualified under state law, Jay S. Parker, state attorney general, has notified royalty companies.

During the last week, the attorney general has been filing ouster suits against oil-royalty companies, most of them with Oklahoma residence. Receivers are being asked in each instance.

OIL-STATE GOVERNOR . . .

JOHN WILLIAM BRICKER, governor of the State of Ohio, was inaugurated January 9, 1939, at the age of 45. He had previously served as a member of the Public Utilities Commission and as attorney general. Governor Bricker was born September 6, 1893, on a farm 25 miles from Columbus. He graduated from Ohio State University with the degree of bachelor of arts, and at once entered the college of law and passed the state bar examination after 2 years of study. He volunteered when the United States entered the World War and later was commissioned first lieutenant in the chaplain corps, and was discharged as such. He was married in 1919 and has one son

ILLINOIS

THE ILLINOIS LEGISLATURE recessed a special session on May 7 until May 21 without taking action on a single oil-tax measure introduced by Rep. Paul Powell (Democrat), of Vienna. The bill, which calls for a 5-cent tax on each barrel of oil produced in the state, is still on second reading.

The session convened April 30 pursuant to a call by Governor Horner. Legislators are confronted with the task of raising $3,000,000 additional revenue to pay for increased old-age pension costs.

ARKANSAS

THE ARKANSAS OIL AND GAS COMMISSION had not decided Monday whether to appeal the three-judge federal-court decision which upheld the Lion Oil Refining Co. in its attack on proration methods of the Jones sand zone in the Schuler field of Union County.

Lion attacked the formula which fixed allowables on basis of "acreage times bottom-hole pressure." The court recommended that sand thickness be considered. Under the court's decision the allowables would be based on 75 per cent acreage times the bottom-hole pressure plus 25 per cent sand thickness.

The Jones sand zone is a combination-drive pool; it has been developed under 20-acre spacing or 20-acre drilling units; with gas-oil ratio of 2,000 ft. of gas to the barrel of oil. Gas-oil ratio and bottom-hole pressure tests have been taken monthly by state engineers.

CALIFORNIA

THE CENTRAL COMMITTEE of California Oil Producers held its annual meeting in Los Angeles last week. Lawrence Vander Leck was elected chairman of the Central Committee, and made state oil umpire. Maurice Machris, vice president of Wilshire Oil Co., was elected first vice chairman, and Lloyd Williamson, second vice chairman. Five committeemen-at-large were elected. They are E. E. Pyles, John Sutherland, R. P. Huggins, Emil Kluth, and Richard Fenton. Several changes were made in administrative work, consequently the various committees have not yet been elected. The organization meeting for the 1940 Central Committee on which there are several new members was held behind closed doors and the entire curtailment setup was discussed and changed. The demand for lower operating expenses resulted in suggested changes which may be made at a later date.

LOUISIANA

AT A HEARING IN NEW ORLEANS, operators in the Sugar Creek field of North Louisiana asked for 40-acre spacing and proration based on an acreage times bottom-hole-pressure factor. A ruling will be handed down after further study by the conservation body. A temporary order gave Sugar Creek oil wells a flat 200 bbl. daily.

Requests for a revised allocation order for the Cotton Valley field will be heard June 7.

Opposition to Inclusion of Stations in Patman Bill

By HENRY D. RALPH

WASHINGTON, D. C., May 13.—Six weeks of hearings on the Patman antichain store bill were climaxed by the appearance of representatives of oil retailers, jobbers, and refiners to protest against the proposed inclusion of filling stations in the bill. Their testimony brought to a close, except for a rebuttal by both sides this week, extended hearings held by a House ways and means subcommittee at which more than 200 witnesses opposed and about 30 witnesses favored the bill, intended to place a prohibitive tax on interstate chains.

It is belt that the bill stands little chance of being reported this session, although it is expected it will be brought up again in January.

The oil witnesses were unanimous in declaring that if the bill were passed including filling stations, their companies would be forced out of business, and thousands of stations would be closed and their attendants thrown out of work. They maintained filling stations can not be classified as stores, since they feature service, and they pointed out that the petroleum industry is already heavily taxed.

The witnesses included H. A. Fuller, Parish Oil Co., Parish, N. Y.; E. T. Woolfolk, Mid-South Oil Co., Memphis, Tenn.; T. M. Martin, Lion Oil Refining Co., El Dorado, Ark.; J. M. Wright, Elk Refining Co., Charleston, W. Va.; J. H. Parker, North Carolina Oil Jobbers Association, New Bern, N. C.; and J. E. Smith, Northwestern Oil Co., Superior, Wis.

Also appearing to oppose the tax on filling stations were the following congressmen: Wesley E. Disney of Oklahoma, Thomas D. Winter of Kansas, Wade Kitchens of Arkansas, and Sam C. Massingale of Oklahoma.

The Chamber of Commerce of the United States filed a statement with the committee in which it called the bill discriminatory and confiscatory and urged its defeat.

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Oil-Truck Legislation

OIL company trucks and all other privately operated trucks operating to any extent in interstate commerce will be subject, after August 1, 1940, to the safety regulations now imposed on common and contract motor carriers under a decision of the Interstate Commerce Commission in ex parte No. MC-3.

After a lengthy investigation the commission found need for federal regulation of private carriers on the highways to promote safety, that it has power to prescribe safety regulations for private trucks, and that with a few exceptions private trucks should be subjected to the same safety regulations as are already applied to other trucks operating in interstate commerce.

The most important regulation is that limiting maximum hours of drivers as established for common and contract trucks in ex parte No. MC-2. Under this regulation a driver may not be on duty more than 60 hours in any one week of 168 consecutive hours, although if trucks are operated 7 days a week a driver may be on duty for 70 hours during a week of 192 consecutive hours. Driving time is defined to mean all time spent on any moving vehicle (except in a sleeping berth) and also includes all time not in excess of 10 minutes while on duty not on a moving vehicle. A driver will not be permitted to drive more than 10 hours in any one period of 24 consecutive hours unless he is off duty for 8 hours during or immediately following 10 hours on duty. Drivers are required to make a daily log of driving time on a form prescribed by the I.C.C., and truck owners are required to see that their drivers are conversant with the regulations. The regulations apply only to drivers and not to other employes of private truck operators.

Private trucks operating in interstate commerce are also subject to standards of equipment and safety rules and regulations on methods of operation prescribed for common and contract trucks in ex parte No. MC-4.

In its decision the commission expressed the opinion that the regulations would apply in a case where the transportation is physically wholly within the borders of one state but is a part of interstate commerce, such as when delivered to or taken from a rail or water terminal.

"We recognize, as a practical matter," the commission said, "that private carriers transport property both in interstate and intrastate commerce. The same motor vehicle operated by the same driver on one or two days in a week may be engaged in transporting property in interstate commerce and the rest of the week may be engaged in intrastate commerce. In our opinion, if a driver operates a motor vehicle in the transportation of interstate or foreign commerce on any day of a given week, such driver is subject to the weekly maximum herein prescribed. Likewise, if a driver employed by a private carrier of property is engaged in interstate commerce during any one period of 24 consecutive hours, he is subject to the daily maximum herein prescribed."

Less than half of the states have laws regulating the time on duty of drivers of private trucks, although most of them have certain safety regulations applicable to vehicles, and the commission says it is probable other states will in the near future follow its lead in establishing maximum driving hours for private trucks in intrastate commerce.

●

Submerged Oil Lands

THE controversy over title to submerged oil lands bordering ocean coasts has come to a head again. The Senate committee on public lands has agreed to report a resolution requesting the attorney general to bring suit to determine the title of the United States Government to submerged lands in all states. This is a modification of the language of the Nye resolution (S. J. Res. 92) which has been pending before the committee for more than a year and which, as originally introduced, declared that the Government has title to submerged lands between the low-tide mark and the 3-mile limit and directing the attorney general to bring suit to maintain this title and oust trespassers.

Passage of the revised Nye resolution would give the Department of Justice the moral support it is seeking, but final action at this session is highly doubtful unless the administration brings great pressure to bear. The House judiciary committee, to which the joint resolution would have to pass after being approved by the Senate, has been hostile to the idea that the Government can claim title to submerged oil lands. For more than a year it has pigeon-holed the Hobbs resolution on this subject after holding hearings at which the Navy Department strongly urged action.

The revised Nye resolution would apply to all submerged lands lining off all coastal states and would not apply specifically to oil lands. For this reason it is expected to arouse the opposition of many states in addition to California, Texas, and Louisiana, since it might impair state title to bridges, docks, and other structures on the ocean bed. Neither does the resolution attempt to establish a naval oil reserve off the California coast as has been proposed frequently in connection with this controversy.

ARNOLD'S STATEMENT ON MADISON CASE

Thurman W. Arnold, assistant attorney general, issued the following statement:

"The Madison oil case is of far-reaching importance because it decides finally and decisively that industries may not join together to put a floor under prices on the plausible excuse that any competition which hurts is a competitive evil. The effect of such a standard was to destroy the meaning of competition and permit any large combinations to drive out of the market competitors who cut prices enough to give the consumer real relief.

"Specifically the oil companies claimed that it was reasonable for them to combine to prevent consumers from buying low-priced gasoline on the ground that it was distress gasoline. By distress gasoline they meant any gasoline which might be sold at lower prices than the oil companies thought was justifiable. This kind of justification for raising prices to eliminate the competitive evil of real competition has been given to the department in literally hundreds of similar cases.

"The decision of the Circuit Court of Appeals stood in the way of prosecuting such cases and left the door wide open for the kind of combination which does not fix the prices directly but prevents them from failing to meet supply and demand. That decision is now reversed and the law is clear that supply and demand must govern the market unless the legislature acts in specific cases. The decision will be of tremendous advantage to consumers all over the United States."

Water Flood Proves Successful In Miami County, Kansas

By DAL DALRYMPLE

PAOLA, Kans., May 14.—The water flood is proving successful in the oil fields of Miami County, Kansas. Air repressuring, started in one of the larger pools of the county several years ago, continues to show results. A gas pool, opened late in 1938, was extended last year and development is continuing on a conservative pattern. Other proposed repressuring projects are in the formative stage; and there is talk, not yet more than rumors, of one or more deep tests to be drilled in this area of shallow sands.

Which is considerable activity for a county that saw its first exploration for oil some 80 years ago.

Credit for the discovery of oil in Kansas goes to A. D. Searl, who came out here from Pennsylvania as a surveyor in 1854. While on a surveying trip into Miami County in 1855 he found oil seeping from the ground at a point a few miles northeast of Paola. He returned to the East and told Dr. G. W. Brown, editor of the Conneautville, Pa., newspaper, of his discovery. The editor disposed of his newspaper interests, moved to Lawrence, Kans., and began publishing another paper. He interested several Lawrence residents in the oil possibilities of Miami County, and was instrumental in organizing Brown, Solomon & Co., which became the state's first wildcat operator. The company leased some 30,000 acres of land in Miami County, this being the first big wildcat block to be assembled in the state. In June 1860, they began drilling the No. 1 Kansas, probably in Section 14-17-24, about 8 miles east of Paola, according to data collected by Marvin Lee, Wichita geologist. This, so far as the records show, was the first wildcat well to be drilled west of the Mississippi. It was dry and abandoned at 100 ft., greatest depth to which the operators could drill with their crude equipment. They drilled another dry hole, and then, with the experience of two failures to guide them, drilled their third well near an old Baptist mission in Section 15, going to the then-great depth of 275 ft. This well, the first to be cased and the first producer west of the Mississippi River, pumped about 1 bbl. of heavy crude oil daily, with salt water. Oil was not produced commercially, however, the outbreak of the Civil War preventing further development at that time.

Exploration was resumed several years after the war, with several contractors, drillers and operators taking an active part in the search for oil and gas. Many wildcats were drilled around Paola, Osawatomie and Louisburg in the early days. The operators included the old Paola Gas Co., composed principally of Joe Maxwell, Harry Jones, and I. N. Boicourt of Paola, William Mills of Osawatomie, and others; Peter Fertig and John Werner of Louisburg; William Mills and W. G. Bryson of Osawatomie; A. P. McBride and C. L. Bloom of Paola, forming the widely known firm of McBride & Bloom, and J. D. Nickerson, of Paola.

Many gas wells of small capacity were drilled, beginning in 1885. The first commercial oil well was completed in June 1886, on the Russell farm 6 miles east of Paola, good for about 10 bbl. daily. In 1887-88, McBride & Bloom drilled several oil wells on the Houston farm, 2 miles southwest of Paola, resulting in the drilling of many more wells in Miami County and the spread of activity into other eastern Kansas counties.

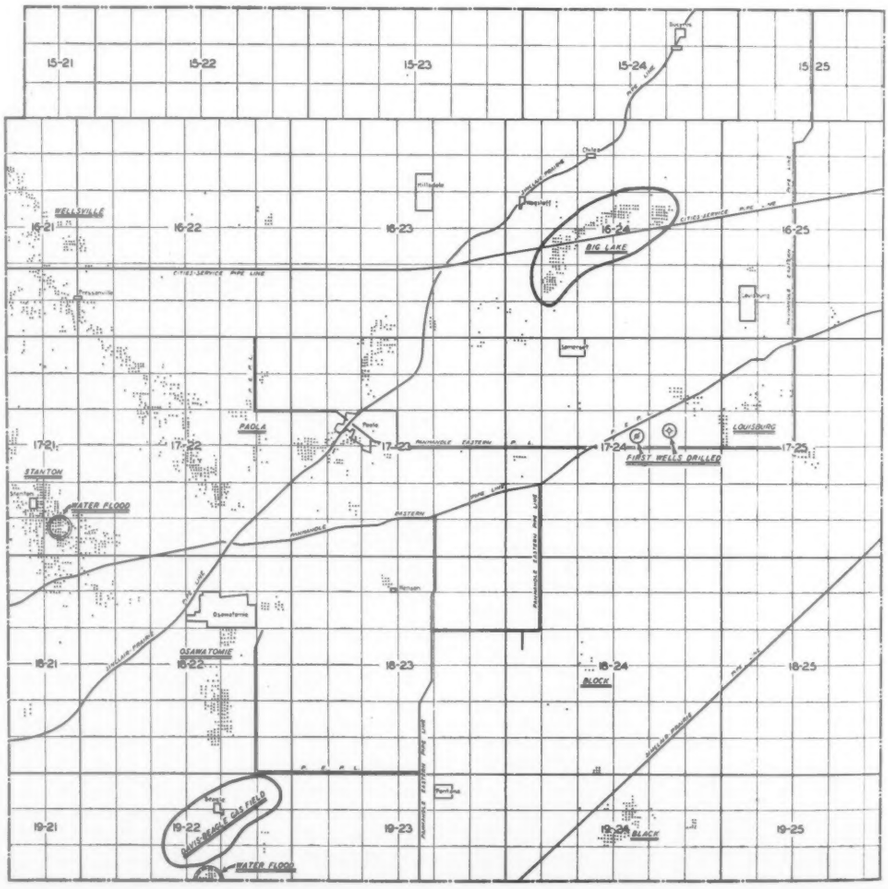
Became Small Producer

In the years that followed Miami became a relatively small producer of oil and gas. Wells completed at shallow depths for initial yields up to 100 bbl. of oil daily declined to where production was gaged by gallons rather than barrels, and many were abandoned. By 1925 total annual production had declined to 13,153 bbl., according to Kansas Geological Survey records—an amount smaller than the rated potentials of some single wells in western Kansas today. It looked like Miami County was through as an oil country.

A few of the faithful kept plugging along, however, and in November 1926, the industry in Miami County was given a new lease on life with the discovery of the Big Lake pool, 10 miles northeast of Paola. The discovery well was drilled in Section 20-16s-24e. Subsequent drilling showed the producing formation to be a shoestring sand with a northeast-southwest trend, curving from Section 14 to Section 29-16-24, where the production pinches out abruptly. The wells varied in depth from 325 to 425 ft., and were generally spaced 330 ft. apart. Initial production ranged from 20 bbl. to more than 250 bbl. daily. The pay sand, which lies within the Marmaton group, ranges from 20 to 40 ft. in thickness.

With the Big Lake Oil Co. and the Haskell-McCrary-Beard interests as the principal operators, development was rapid and the pool soon defined. Peak production was attained in December 1927, when the average was slightly under 16,000 bbl. daily. Because of the Big Lake discovery, Miami County's total production soared to 752,102 bbl. in 1927. The shallow wells, customarily drilled with portable machines, were usually drilled, completed and connected to the pipe line within a week's time, at an averages cost of about $800. The flush production usually paid costs of the wells. For 18 months after reaching peak production the decline was small, but by 1930 the yield had dropped to about 300 bbl., and as no effort had been made to preserve gas that fuel was practically depleted.

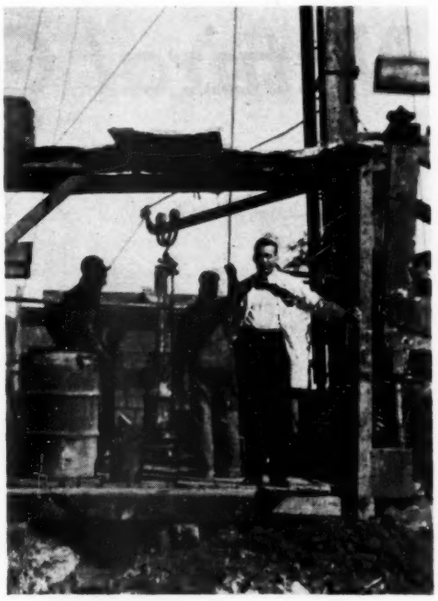
The Big Lake company decided the time was at hand to begin repressuring with air. This is a Paola firm, with B. L. Phillips as president and



Miami County, Kansas, with active areas shown encircled

G. E. Phillips as secretary-treasurer. The Haskell-McCrary interests, with production in the northeast part of the field, also decided to repressure, thus relieving likelihood of loss by air escaping to outlying properties not owned by the Big Lake company.

The project has been continued through succeeding years and now, nearly 10 years after air was applied, about 60 per cent of the original producing wells are on air. The 160 wells of the Big Lake company have been producing an average of 1½ bbl. each daily for the last 5 years, and now the operators are running 200 bbl. of oil daily, that being the maximum amount the pipeline company will take, this being one of the few



Above: This well on the Vossler lease in the Stanton pool, second Miami County well to go on production under water flood, has had production increased from ½ bbl. to 24 bbl. daily. Right: a drilling well in Miami County, oldest oil area in the Mid-Continent. Bob Dalrymple, field man for Davis Gas Corp., in foreground

prorated pools in eastern Kansas. Operators declare the air pressure has increased production two to three times, and are prepared to put all wells on air whenever there is a market for the oil. Haskell-McCrary, with 140 to 150 producing wells, have had results similar to those of the Big Lake company.

Total production of the field to date has been in excess of 4,000,000 bbl., and as production is holding up fairly steady under repressuring it appears likely that amount will be increased considerably before ultimate recovery has been attained.

The water flood is something new in this old oil county, but there have been sufficient returns on one small project to date to assure a considerable increase in that phase of recovery in the next few years.

G. F. Vossler, of Osawatomie, owned a lease in the Stanton-Rantoul field, which lies partly in Miami and partly in Franklin County. He completed 13 producing wells on his lease in Section 36-17-21e, in 1913-14 and 1916-17. After several years the yield declined to where single wells were not producing more than ¼ bbl. daily, and the 11 wells still on the pump were averaging only 40 to 50 bbl. monthly. The operator gave that entire production to the pumper as pay for keeping the lease alive.

After an inspection of water-flood projects in the Pennsylvania fields, he decided to experiment in a small, economical way with water on his Kansas leases.

Water was obtained from wells bottomed at 200 ft., with top of water sand at 185 ft. Using the five-spot plan, he drilled six input wells, spaced 575 ft. from north to south and 450 ft. from east to west. The intake wells were drilled to around 345 ft., top of the Peru sand, producing horizon in the field, with a sand thickness of 20 to 30 ft. Water is pumped direct from the water wells to the intake wells, the fluid not being treated nor exposed to daylight.

First water was pumped into an intake well March 23, 1938. About 6 weeks later pumping of water into the second intake well began. Other intake wells were utilized as conditions justified. Pressure of about 300 lb. is used. The operator believes he could get greater recovery with increased pressure, but holds to the minimum amount in order to prevent the water from getting ahead of the oil. The intake wells are taking from 12 to 50 bbl. of water.

The first oil well to be affected by the water pressure began showing increased production about 8 months after pumping of water into the sand began.

Up to date six oil wells are responding to water pressure. The first two to show an increase now have daily capacity of 30 bbl. of oil, with the other four averaging around 12½ bbl. daily.

Production from wells on the first 80-acre tract to benefit from the water flood totaled 1,234 bbl. last December; 1,187 bbl. in January 1940; 900 bbl. in February, and the yield is continuing at around 1,000 bbl. monthly, actual amount determined by market requirements. The oil, which tests 32° gravity, is taken by Sinclair Prairie pipe lines for 90 cents a barrel. Wells on the second 80-acre tract are just beginning to come into production.

Only one oil well now is receiving pressure from four sides. Mr. Vossler plans to drill 12 additional intake wells and may drill some additional oil wells. He expects to have all oil wells under pressure within the next year or so. It also is his plan to recase the oil wells, the original casing having been damaged by shale gas, resulting in loss of considerable oil.

Second Project Started

A second water-flood project is under way in an old field south of Beagle, being partly in Miami and partly in Linn County. This is on leases of the J-S-L Oil Co., of Chanute. The field, which had produced from Squirrel sand at 472-86 ft. for many years, was abandoned in 1927. In April 1939, the water-flood project was started by F. W. Black, Osawatomie contractor, who drilled 11 wells. The J-S-L company carried on, drilling three additional wells, giving a total of five intake and nine oil wells. Injection of water began in November 1939. Water is picked up with a long-stroke jack hooked on rod lines, equipped with 3-in. tubing and 2¾-in. working barrel; pumped into treating tank and, after treating, is pumped through a sand filter into a clear well. It is picked up there on a horizontal duplex pump and injected into the system. This is a low-cost project, unique in that one 25-hp. semidiesel engine is doing all the work. Thirty acres of 240 acres leased already have been flooded. It is too early to determine results, but oil wells that were capable of producing only 1 bbl. each already have had production stepped up about 10 per cent, and as more water is injected the increase is growing.

Success of these two projects, farthest north water floods in Kansas, undoubtedly will result in flooding of many other leases in the county, local operators predict. Hundreds of old wells, many abandoned, in the Paola, Osawatomie, Rantoul, Wellsville, Stanton and other pools of Miami County seem destined for the water flood.

Open New Gas Field

Repressuring of old pools is not the only new activity in Miami County, however, two new gas areas around the village of Beagle now being developed. The two pools, probably producing from a common source, are known as the Davis-Beagle field.

It was discovered by the late J. M. Davis, president of the Davis Gas Corp. of Paola, late in 1938. The proven area covers parts of Sections 1, 2, 3, 9, 10, 11, 15 and 16-19-22e.

Last September 7, the newest pool was opened at Davis Gas Corp.'s No. 1 Myrtie Grant, SE Section 9, about 2 miles southwest of the original pool. It was bottomed at 535 ft., and had initial production of 620,000 cu. ft. of sweet gas, coming from the first and third shales above Bartlesville sand. The Peru sand also yielded gas and showings of oil at around 350-400 ft. Location of this discovery well was 34 ft. higher on structure than previous wells drilled to the northeast.

Development is being carried on by the company under supervision of E. C. Helm, Paola operator who also is active in Jefferson County and elsewhere in the Forest City basin and northeastern Kansas.

The following wells have been drilled in the new pool since the Myrtie Grant discovery: No. 1 J. Gooden, 600,000 cu. ft.; No. 1 D. Gooden, 1,500,000 cu. ft.; No. 1 Jones, 1,800,000 cu. ft.; No. 1 Rose, 250,000 cu. ft.; No. 1 Skinner, 300,000 cu. ft.; No. 1 Fern Grant, 320,000 cu. ft.; Nos. 1, 2, and 3 J. Bell, average 250,000 cu. ft.; Nos. 1 and 2 R. Grant, 150,000 cu. ft. each; No. 1 Rice, 150,000 cu. ft.; No. 1 Lee, 140,000 cu. ft. The most recent producer, completed last month, was the No. 1 Azendorf, Section 25, total depth 530 ft., had initial yield of 125,000 cu. ft. It was drilled by J. B. Walters, Paola contractor, with cable tools. Work was starting on No. 2 Azendorf. Hal Lambeth and Jean Lemons are other Paola contractors active in the field.

Rock pressure averages 180 lb. Elevation is 950 ft. The area was geologized by Silas Brown and Walker Josselyn, geologists, for the Davis Corp. Panhandle Eastern Pipe Line Co. takes all the gas, paying 8 cents a thousand cubic feet, the price rarely fluctuating.

A few wells have been drilled in Miami County into the Mississippian and older formations, but without success as yet. However, geologists say that before the possibilities of deeper production are condemned in the county, additional tests located on well-defined subsurface anticlines should be drilled to Arbuckle lime. Miami County lies between the Forest City basin and the Chautauqua arch, and from a regional standpoint is well situated in regard to oil accumulation.

Refinery Expansion

Warner Refinery Operating On Turner Valley Oil

WARNER, Alta. — Warner Refining & Distributing Co., Ltd., has completed and placed in operation a $30,000 refining plant of 800-bbl. maximum capacity. The plant, with cracking unit, will operate 24 hours a day, producing gasoline, distillate, diesel fuel, and oils, and utilizing about 75 per cent of Turner Valley crude, with some Montana crude for blending. Crude from tank cars will be unloaded at Warner into a pipe line connected with the company's storage tanks, of 250,000 gal. capacity. The company will establish bulk and filling stations in southern Alberta and is planning to drill on acreage east of Coutts. Officers of the company are: President, Paul Kuschel; vice president and manager, Harry Osborn; secretary-treasurer, P. W. J. Kuschel.

Gasoline Law Withdrawn in Canadian Legislature

CHARLOTTETOWN, Prince Edward Island. — The provincial government has withdrawn a bill submitted to the legislature to authorize the fixing of wholesale and retail prices of petroleum products and to license those engaged in the business. The measure will be reintroduced at next year's session.

Central Marketing Committee At Chicago September 10

The Central Regional Committee, of the Division of Marketing, American Petroleum Institute, announces its next meeting will be held in Chicago on September 10.

The following members have baen appointed to serve as the regional advisory committee, representative of all types of marketers, whose function will be to prepare the program for subsequent meetings:

H. T. Ashton, chairman; W. H. Wright, representing jobbers; Russell Williams, representing individual-brand jobbers; M. E. Holland, representing dealers; Paul Ryan, representing independent integrated operators; Amos Ball, representing major operators; J. L. Nolan, representing farm cooperatives; L. B. Simmons, representing independent refiners; A. G. Talbot, representing car-lot marketers; F. E. Spencer, representing bnurning-oil distributors.

Atlantic Refining Co. Tanker Robert C. Tuttle Launched

The Atlantic Refining Co.'s new 19,405-ton tanker, Robert C. Tuttle, was launched May 11 at the yards of Sun Shipbuilding & Dry Dock Co. at Chester, Pa. It was christened by Mrs. Robert C. Tuttle, wife of the vice president of Atlantic.

Houston Oil Arkansas Properties to Camden

SHREVEPORT, La.—Withdrawal of Houston Oil Co. of Texas from activity in Arkansas was marked last week by sale of bulk-plant and service-station properties to Camden Oil Co. Houston Oil Co. at one time operated a large refinery and extensive marketing facilities in South Arkansas.

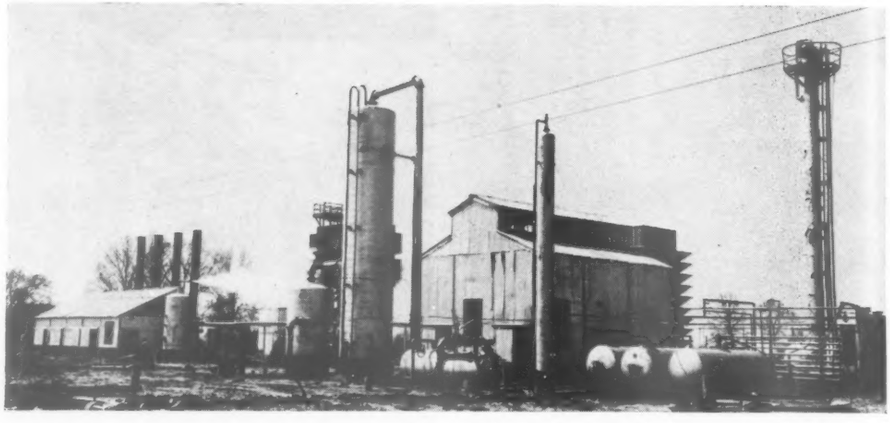
Tide Water Associated Plans Automotive Laboratory

LOS ANGELES, Calif.—The Associated Division of Tide Water Associated Oil Co. has recently awarded a contract to the Dinwiddie Construction Co. of San Francisco covering the building of a new automotive laboratory at Avon, Calif. Prior to the preparation of the plans, a detailed study was made of several petroleum and automotive laboratories operating in the United States. The new laboratory will be a one-story building of streamline design covering a floor area of approximately 7,500 sq. ft. The general layout incorporates dynamometer rooms, mechanical testing rooms, special test-engine laboratories, machine shop, test-car workshop, data room, dark room, projection room and offices.

Special foundations for test engines and equipment have been designed to overcome the transmission of vibrations to the floors and building.

The main dynamometer test-engine room will accommodate eight units ranging from 50 to 400 hp. and speeds up to 6,000 r.p.m. The dynamometers enable the testing of various types of internal-combustion engines of both the gasoline and diesel type. This equipment will be used primarily for the testing and development of fuels and lubricants. A special dynamometer room will be provided with a high-speed 400-hp. dynamometer for testing engine and petroleum products

Natural Gasoline



Construction view of the Sunflower Natural Gasoline Co.'s new plant at Salem, Ill.

Natural-Gasoline Production Increased During March

The production of natural gasoline increased in March 1940, according to the Bureau of Mines. The daily average in March was 6,082,000 gal., compared with 6,052,000 gal. in February and 5,734,000 gal. in March 1939. The chief gains in March 1940 occurred in the Texas Gulf, East Texas and Arkansas districts.

Stocks of natural gasoline increased from 199,794,000 gal., the first of the month to 226,506,000 gal. on March 31. This was 28,224,000 gal. more than was on hand a year ago.

(Thousands of gallons)

	Production			
	Mar. 1940	Feb. 1940	Jan.-Mar. 1940	Jan.-Mar. 1939
East Coast				
Appalachian	7,874	8,106	25,046	21,271
Ill., Mich., Ky.	2,139	1,998	6,397	3,689
Oklahoma	33,883	31,741	96,971	110,480
Oklahoma City	6,755	6,879	21,095	27,032
Osage County	4,356	4,122	12,163	12,257
Seminole	10,056	9,006	27,161	29,336
Rest of state	12,716	11,734	36,552	41,855
Kansas	5,401	5,619	17,057	15,147
Texas	72,541	64,970	201,166	158,727
Gulf	15,899	12,236	39,149	15,315
East Texas	14,742	13,090	41,081	42,545
Panhandle	22,208	21,410	65,907	57,861
North Texas	2,599	2,378	7,171	6,480
West Central	5,540	5,279	16,124	16,880
Rest of state	11,553	10,577	31,734	20,646
Louisiana	7,932	8,839	25,942	20,596
Arkansas	2,925	1,702	6,174	6,467
Rocky Mountain	7,090	6,491	20,357	20,824
California	48,753	46,052	144,328	156,005
Huntington Beach	2,769	2,531	7,972	8,927
Kettleman Hills	10,523	9,905	31,042	44,784
Long Beach	7,556	7,004	21,836	21,317
Santa Fe Springs	4,797	4,458	14,040	14,767
Ventura Avenue	5,232	5,157	15,819	15,178
Rest of state	17,876	16,997	53,619	51,032
Total	188,538	175,518	543,438	514,206
Daily average	6,082	6,052	5,972	5,651
Total (thousands of barrels)	4,489	4,179	12,939	12,243
Daily average	145	144	144	136

Shipments to jobbers and retailers increased from 10,710,000 gal. in February to 15,582,000 gal. in March, and exports reported to the Bureau of Mines from 3,360,000 to 10,626,000 gal.

The average vapor pressure for shipments to refinery-owned bulk plants increased materially but the average vapor pressure for all other shipments decreased. The weighted average for the month was 20.3 lb., compared with 21.2 in February and 19.6 in March 1939.

Panhandle Producers Hold Annual Meeting

AMARILLO, Tex., May 7.—George C. Gibbons of Dallas, Tex., executive vice president of the Texas Mid-Continent Oil & Gas Association, told the Panhandle Producers and Royalty Owners Association at its annual meeting here May 4 that livings of 75,000 residents of the Panhandle depend upon the successful conduct of that area's oil and gas industry.

"Every battle you win for your industry is a battle won for over 75,000 men, women and children who look to the Panhandle oil and gas business for their livelihood," he said. "To these Texans, the continued welfare of the industry means as much as it does to you who have your capital invested in the business. To them it means a steady and continuing return on their investments of energy, brains and training, and the future welfare of their families.

"When you fight attempts to increase further your already excessive tax load on oil, when you effect efficient methods of production which prolong the life of your fields, when you bring about operating economies which enable you to produce at a profit, you are doing more than helping your own business, you are helping thousands of men and women who depend upon your industry for a living."

Eugene McElvaney, Dallas banker, said that "by a combination of circumstances, the banker and the oil man have found each other, and that discovery has been almost as important as the discovery of the oil itself."

at extremely low or high atmospheric temperatures. The laboratory will also contain a mechanical testing room for carrying on research projects in various automotive units, comprising transmissions, rear axles, bearings and many other automotive and industrial units.

It is expected 5 months will be required to complete the laboratory which will represent an investment well over $100,000.

Port Brownsville Refinery Project Is Reported

A report from McAllen, Tex., says work on a $2,000,000 oil refinery at Port Brownsville will start the latter part of the year, according to W. R. Davis, head of Davis & Co., which owns the Rincon field of Starr County. Storage tanks are already under construction on the 200-acre site bought on the Brownsville Ship Channel.

British Columbia Gasoline Price War Terminated

VICTORIA, B. C.—The price-fixing controversy between the British Columbia Fuel Board and Petroleum Industries, an association of nine gasoline refiners and wholesalers, terminated when an agreement was reached fixing the basic retail price of gasoline at Vancouver at 25 cents an imperial gallon, with a 4-cent price spread allowed the retailer. This would give a wholesale price of 21 cents instead of 19 cents allowed by the board's original order. The figures include the 7-cent tax.

Prices in other parts of the province will vary according to the cost of transportation from Vancouver, the distributing center. The board originally fixed the retail price at 24 cents, with a 5-cent spread to the retailers; but on April 26, when the order was to become effective, the distributors suspended gasoline deliveries.

Natural Gas

Potentialities of Gas as a Chemical Raw Material

C. George Segeler, engineer of utilization, American Gas Association, in a talk before the Industrial Gas Sales Conference at Toledo, Ohio, recently, said:

"The byproduct of today forms the industry of tomorrow; and this may well be the future history of the century-old gas industry. Gas for heat has an ancient appeal, but gas as a chemical raw material and reactive agent opens an entire new vista. Nor should it be assumed that the applications of gas as a chemical are freakish and unusual. The chemical uses of gas are already growing commonplace, and it is high time that the gas industry did something about it.

"The total annual volume of gas used in chemical processing is almost equal to the total sales of natural gas for domestic purposes as shown in our annual A.G.A. statistics (about 350,000,000,000 cu. ft.). It appears impossible that such a quantity of gas should have been sold for chemical purposes while the gas industry hardly knows about it. Yet this is true although a substantial portion has gone into the making of carbon black in which the gas industry takes no pride because of its wasteful features. Still, it may be stimulating to realize that there is a real chemical market for gas and that here and there, one of the many applications may fit any gas territory.

"A classification of the ways in which gases can be applied chemically might be helpful, and the following grouping is suggested:

"Direct interaction between gases and various chemical reagents to form new products.

"Cracking of saturated gases to form unsaturated compounds which can then be converted into other products. Cracking may also be applied for producing heat-treating and reducing atmospheres high in hydrogen and carbon monoxide.

"Partial combustion to produce the many different types of heat-treating atmospheres.

"Complete combustion to produce 'inert' atmospheres containing large amounts of N_2 and CO_2 and no oxygen. Sometimes a little carbon monoxide is desired.

"Separation of manufactured gases into their individual components for subsequent chemical application."

Southern Natural Plans Expansion of Facilities

Southern Natural Gas Co. has announced it will spend $3,000,000 enlarging its pipe-line facilities from the Monroe gas field to Milledgeville, Ga., which serves Birmingham and Atlanta.

The expansion was due, officials said, to the increased demand for natural gas. The expenditure will include construction of 80 miles of additional pipe line, some of which will parallel existing facilities.

The enlargement plan calls for adding about 13,000 hp. in additional compressing facilities in Louisiana, Mississippi, Alabama, and Georgia. The company will erect a compressor station at Tarrant City, Ala., and will recondition the abandoned compressor at De Armanville, Ala.

The company's previously announced intention of expanding its facilities from Calhoun, Ga., to Chattanooga, Tenn., ran into trouble. Southern proposed to construct 45 miles of 8-in. line and an affiliate company had applied to the Tennessee Utilities Commission for a rate schedule.

A new company, however, interceded and is attempting to oust Southern as a prospective distributor of gas in Chattanooga.

The concern is Tennessee Gas & Transmission Co., which contested Southern's application, on grounds that Southern could not supply adequate gas. Tennessee Gas & Transmission is headed by V. S. Johnson, Chicago; John E. Buchanan of Kentucky, and Curtis B. Dall of New York. It plans to construct an 800-mile line from some Louisiana field to Tennessee which would serve Chattanooga, Knoxville, and 31 other cities. The line would enter Tennessee near Savannah.

Pipe-Line Activity

Clayton County Permit to Southeastern Co.

JONESBORO, Ga.—The Clayton County commissioners gave unanimous consent yesterday for construction of a gasoline pipe line beneath county highways. The permission was granted Southeastern Pipe Line Co., builders of a line from Port St. Joe, Fla., through Georgia to the Tennessee line near Chattanooga. Similar permission previously was granted by Henry, Baker, Crawford and Decatur counties in Georgia.

Kansas Pipe Line Co. Modifies Its Area

WASHINGTON, D. C.—The Kansas Pipe Line & Gas Co. has asked the Federal Power Commission for leave to modify the area it would serve if authorized to build a 2,300-mile natural-gas pipe line through Kansas, Nebraska, South Dakota, North Dakota and Minnesota.

As modified the company's plan would be to serve 102 communities immediately and 52 others later, many by branch lines to be built by distributors. Cost of the modified project was figured at $14,550,000. The original cost estimate was $21,000,000.

Welders making final tie-in on a 4-mile gathering line of the Texas Co. in the Montebello field, California. This 6-in. line parallels an 8-in. and an 18-in. line of the same company, all three being used for the transportation of wet and dry gas

Vegreville Gas Project Includes 22-Mile Line

VEGREVILLE, Alta.—Vegreville Gas Utilities, which 5 years ago secured a natural-gas franchise for this town, is planning to lay a 22-mile pipe line from the Viking field and install a local distributing system this summer. The transmission line will cost around $122,000 with $38,000 for the distributing system. Efforts to develop gas production close to Vegreville have been unsuccessful.

Saskatoon Pipe-Line Survey

LLOYDMINSTER, Sask.—S. Miller Williams, Jr., of Houston, Tex., and Guy Connors, of Calgary, have made an aerial inspection of the proposed natural-gas transmission-line route from the Lloydminster field to Saskatoon. Construction of the Saskatoon distributing system is expected to start this month.

Federal Grand Jury Probe Of Pipe-Line Bombings

SPRINGFIELD, Ill.—U. S. Dist. Atty. Howard L. Doyle has requested subpenas for 21 witnesses to appear in federal court at Springfield before a federal grand jury investigating six bombings of the Texas Empire pipe line in southern Illinois. Mr. Doyle summoned the witnesses after federal agents completed an inquiry into a series of blasts which occurred between July 1939 and February 1940. The first bombing occurred on July 8, 1939, at Olney. Other bombings were: September 11, 1939, at Lawrenceville; September 26, 1939, at Brownstown; December 23, 1939, at Casey; January 13, 1940, at Ramsey, and February 9, 1940, at Brady.

F. A. Stivers, vice president, offered a $5,000 reward to the person furnishing information leading to the arrest and conviction of individuals responsible for bombings which occurred on September 11 and 26 of last year.

International

Mexico . .

Sinclair Settlement Reported Confirmed

CONFIRMATION that Consolidated Oil Corp. (Sinclair) has accepted a settlement of $8,500,000 for a majority and the most valuable of its expropriated properties in Mexico was given in New York last week. The $8,500,000 is to be paid in 3 years and the first installment, a check for $1,000,000 on the Mexican Government, was in the hands of Ambassador Francisco Castillo Najera at Washington awaiting transmittal to the New York office of Consolidated Oil Corp.

Properties of Penn-Mex Fuel Co. and a large undeveloped concession in the northern part of Mexico held jointly by subsidiaries of Consolidated and Standard Oil Co. of New Jersey were not included in the settlement.

"The friendly attitude of Harry F. Sinclair and the intelligence, tact and perseverance of his representative, Patrick J. Hurley, who without dismay and all through their long negotiations, worked continuously to eliminate the numerous obstacles opposed to an agreement are in a great part responsible for the complete success of the negotiations," Ambassador Najera said in a statement issued at Washington when the settlement was officially announced. In announcing the settlement from Mexico City, Secretary of Treasury Eduardo Suarez said it represented "total payment" to be made for the Sinclair properties in Mexico.

The Consolidated group also confirmed that it intended to purchase some oil from Mexico, but company spokesmen said this phase of the relationship was a strictly commercial transaction.

The other expropriated companies, chiefly subsidiaries of Standard Oil Co. of New Jersey and Royal Dutch-Shell group have expressed unconformity with the basis upon which the Consolidated settlement was reached.

The Standard and Shell groups take the attitude that the principle enunciated by Secretary of State Hull for "prompt, effective and adequate compensation" to establish validity of expropriation in no sense has been met. With respect to Standard, Shell and expropriated properties, other than Sinclair, the expropriation issue is unchanged from May 1 when the Mexican Government rejected Secretary Hull's suggestion that the issue be submitted to arbitration.

Production of Mexican crude oil in February 1940, according to information obtained from the Mexican petroleum administration by the American consul at Mexico City, amounted to 2,973,385 bbl., of which 365,380 bbl. was heavy oil and 2,608,005 bbl. classified as light. Production by districts follows:

	Bbl.
Panuco	365,380
Naranja	164,245
Poza Rica	2,013,461
Isthmus	430,299
Total	2,973,385

In addition to the total reported by the government petroleum administration there was a small production recovered by companies unaffected by expropriation. It is estimated that production of these companies during February was 174,000 bbl., lifting the total for Mexico for the month to 3,147,385 bbl.

Exports of petroleum during February were reported to total 1,361,612 bbl., compared with 1,549,813 bbl. in January and 1,431,627 bbl. for February 1939. About 60 per cent of the February exports came to the United States and about 25 per cent went to Italy. This relationship reverses the trend of recent months when shipments to Italy were generally greater than to the United States. It is believed, however, that some of the shipments to the United States were later consigned to Italy, probably in the form of refined products. February petroleum exports by categories were as follows:

	Bbl.
Heavy crude	169,175
Poza Rica	501,532
Fuel oil	105,939
Gas oil	418,287
Gasoline	47,267
Lubricating oil	127
Asphalt	99,295
Total	1,341,622

Destination of exports shows that the United States received mostly crude and gas oil, a product that would qualify in most respects for light fuel-oil requirements. This situation was doubtless reflective of the record demand for light burning oils during January and February at a time that domestic stocks were seriously depleted. The following are summaries of February shipments by products and countries:

	Bbl.
Heavy crude:	
United States	142,182
Italy	46,993
Light crude:	
Italy	104,346
Japan	88,426
United States	308,760
Residual fuel:	
Italy	54,095
Gas oil:	
United States	413,211
Gasoline:	
United States	47,127
Asphalt:	
Scandinavia	86,990
Central America	12,276

Summary of production reported by fields for January and February:

	Barrels	
	January	February
Panuco: Pemex	291,063	339,968
A.G.P.N.	24,871	25,412
	315,934	365,380
Naranjos: Pemex	195,430	158,030
A.G.P.N.	6,862	6,215
	202,292	164,245
Poza Rica: Pemex	1,630,330	1,694,520
A.G.P.N.	305,480	318,941
	1,935,810	2,013,461
Istmo: Pemex	489,790	426,890
A.G.P.N.	3,642	3,409
	493,342	430,299
Total	2,947,468	2,973,385

Argentina . .

REFINERIES in Argentina processed 1,797,215 bbl. of domestically produced crude oil during February and 287,438 bbl. of imported oil, according to a report from the American consul at Buenos Aires. While statistics are not available as to whether the 1,797,215 bbl. of domestically produced oil processed represented the output for that month it is assumed under prevailing conditions it was approximately that total.

Venezuela . .

Pantepec Statement On No. 2 Roble Well

PANTEPEC OIL CO. of Venezuela, C. A., has issued the following statement:

"No 2 Roble has been thoroughly tested at two intervals, from 9,348 to 9,520 and from 8,312 to 8,348 ft. In the former interval, the well produced at the rate of 1,113 bbl. of 43.1-gravity oil per day through at 5/16-in. choke. In the latter and shallower interval it produced at the rate of 1,816 bbl. per day of 42.5-gravity oil through a ½-in. choke, and during the last hour produced at the rate of 2,400 bbl. per day. An earlier test at the interval from 9,620 to 9,647 ft. resulted in a flow at the rate of 189 bbl. per day. Oil indications were excellent at the interval from 9,927 to 9,979 ft., but the test made was, in our opinion, inadequate. It should be noted that the tests of the productive intervals indicate a production of more than 2,000 bbl. per day. It is the intention to produce simultaneously from all the producing intervals found so far in this well.

"On April 30, 1940, 1,350 bbl. were shipped from No. 2 Roble through the pipe line, but it is not the intention to ship regularly from the two Roble wells until completion of the pump station within 3 or 4 weeks. It would be premature to estimate what the daily shipments will be, but we believe we can now look forward to the early shipment of several thousand barrels of oil per day from Nos. 1 and 2 Roble. During March, Pantepec's portion of oil from the TR field amounted to 14,870 bbl. The derrick for No. 3 Roble is being erected and the well should be spudded in the early part of next week (May 13). This well is about ¾ of a mile east of No. 1 Roble. A location has been agreed upon for No. 4 Roble, which is 1,150 m. (approximately 7/10 of a mile) north and slightly east of No. 1 Roble."

Saudi Arabia . .

Oil Pool Is Discovered Northwest of Dammam

A CONCLUSIVE production test has not yet been made on California Arabian Standard Oil Co.'s No. 1 Abu Hadriya, but confirmation has been received that it appears to have opened a new producing pool in Saudi Arabia, about 100 miles northwest of the Dammam field. The wildcat discovery was completed at 10,220 ft. No prolonged test has been made, according to the operating company. However, preliminary tests indicate the discovery of a commercial field. At the present time the well is shut in. Preparations are under way for drilling a second test on the Abu Hadriya structure.

California Arabian Standard's No. 1 Ma'aqala, about 175 miles west of the Dammam field, is drilling at 4,295 ft. The well was started late last year on the strength of geological and geophysical evidence developed by the company's personnel.

Chemical Engineers' Papers Of Interest to Refiners

By H. STANLEY NORMAN

BUFFALO, N. Y., May 14.—Advances in chemical engineering and the application of chemistry to industry featured the thirty-second semiannual meeting of the American Institute of Chemical Engineers held here this week. Dr. Webster N. Jones, president of the institute and dean of engineering at Carnegie Institute of Technology, Pittsburgh, Pa., presided.

A paper, describing a process for the "absolute" separation of water from alcohol, was of particular interest to the petroleum industry. The new process, based on the addition of a third liquid—in this case ethyl ether—lowers the boiling point of water and allows it to be distilled out of the alcohol. It was developed jointly by T. O. Wentworth of Vulcan Iron & Supply Co., Cincinnati, Ohio, and Dr. D. F. Othmer, professor of chemical engineering at the Polytechnic Institute of Brooklyn, N. Y.

The new method is the result of a search for a solvent which can be added to lower the boiling point of the water but which will not take alcohol with it when it is distilled off. Such a solvent was found in ethyl ether, a low-boiling liquid which when added to alcohol containing water and then boiled off takes the water with it but leaves all of the alcohol behind.

Thermal characteristics of molten salt were described in a paper by W. E. Kirst, W. M. Nagle, and J. B. Castner, of E. I. du Pont de Nemours & Co., Inc. Circulation of molten salt through steel coils, as hot water circulates through the conventional domestic radiator, was described as a new method of industrial heating capable of achieving higher temperatures than are attainable with any other fluid heating method.

A prediction that a large share of our future industrial leaders will come from the ranks of men having chemical engineering training was made in a paper prepared for delivery at the World Chemical Engineering Congress in Berlin next month. The paper was prepared by Dr. C. M. A. Stine, vice president of Du Pont Because the chemical congress has been indefinitely postponed the paper was made available at the Buffalo meeting.

Dr. Stine pointed to the function of chemical engineers in the catalytic refining of petroleum and allied processes as one of the achievements of the profession. He listed numerous other contributions of the decade including: synthetic-resin enamels based on the alkyd resins; polyvinyl acetal resin safety glass; urea synthesis and application of urea ammonia to superphosphate fertilizer mixtures; establishment of a new potash industry in New Mexico; synthetic rubber; nontoxic refrigerants; synthetic camphor; new synthetic plastics, and synthetic silks.

Awards of the institute went to Walter L. Badger, manager of the consulting engineering division of the Dow Chemical Co., Ann Arbor, Mich., and Howard Campbell, a senior in chemical engineering at McGill University.

Mr. Badger received the William H. Walker Award made annually for an outstanding contribution to chemical-engineering literature published in the institute's transactions by a member during a 3-year period prior to the award. Dr. A. B. Newman, chairman of the award committee, said the presentation to Mr. Badger was based upon six papers relating to heat-transfer coefficients in heaters and evaporators. Dr. Badger was professor of chemical engineering at the University of Michigan for 25 years before joining Dow in 1937. He is the author of books on "Heat Transfer and Evaporation," "Elements of Chemical Engineering" (with Dr. W. L. McCabe), and "Inorganic Chemical Technology" (with Dr. E. M. Baker), all of which are used as texts in engineering colleges in this country and abroad.

Mr. Campbell received the A. McLaren White Award made by a committee headed by William T. Nichols, research director of the Westvaco Chlorine Products Corp. Mr. Jones, institute president, presented Mr. Campbell with a check for $100. Wilmer L. Kranich of the University of Pennsylvania received second award of $50 while Leroy N. Chellis of Clarkson College of Technology was third receiving $25. Honorable mention and an award of $10 went to O. R. McIntire of the University of Kansas.

The student awards are based on a problem contest, judged by Mr. Nichols and I. L. Murray, and Roland Voorhees of Carbide & Carbon Chemicals Corp.; Charles M. Cooper of the Du Pont company, and W. B. Rose, Jr., of the Westvaco corporation.

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Texas Oil Associations Demand Crude Limit

FORT WORTH, Tex., May 14.—With representatives of practically every Texas independent oil association in attendance, more than 50 association executives met in Wichita Falls Monday to discuss problems common to all the groups. Meeting in closed sessions these executives adopted resolutions advocating that Texas oil production be limited to Bureau of Mines forecasts: That proration orders should not exceed 1-month duration for the present due to unsettled conditions; that no change be made in an order during the 30-day period for which it was promulgated; that no special allowables be granted; and that no change in allowables be granted without a hearing. D. H. Rolin, president of the North Texas Oil and Gas Association, presided.

"In view of the fact that during the last 4 months the orders of the Railroad Commission have contributed to this large overproduction of oil, which necessarily brings about material and substantial physical waste, we believe it incumbent upon every independent producer to take any step necessary to avoid the impending disaster."

To accomplish the recommendations the group urged that the oil and gas associations represented secure an endorsement of the program by its board of directors and each association be represented at Austin on May 20 to insist that the commission write an order and prepare a schedule within the Bureau of Mines estimate of consumptive market demand for Texas crude, and that such adjustment be made between the various fields of the state as are necessary to eliminate existing inequities.

It was also recommended that each association appoint three members to a state committee, to meet at the call of the chairman, for the purpose of coordinating their work in connection with common tax problems of the industry in Texas.

J. D. Sandefer, Jr., of Breckenridge, was recommended as temporary chairman of the committee.

At a luncheon H. D. Fell made a strong plea for keeping production within market demand. Aboveground and underground waste, economic waste, selective buying, more unconnected wells and premature abandonment of wells were some of the evils resulting from producing beyond market demand, he said.

DEATHS

WILLIAM H. QUINN, for 18 years manager of the Chain Belt Co. in New York City, died of heart attack recently.

A. R. (BOB) TILLOTSON died in San Antonio, Tex., recently. He started in the Coalinga oil fields, went to Tampico, Mexico, in 1912, and had been an independent operator in the Mexican oil fields since.

ANDY BRUNER, 74, a pioneer Oklahoma oil producer, died May 9 in Tulsa. He was a native of Pennsylvania.

WALTER P. SCHWANKE, 51, president of Major Oil Co., Looboyle Refining Co., the Major Oil Co. of Kansas, and the Major Oil Co. of Louisiana, died at his home in Tulsa May 9.

B. E. (BARNEY) HEPLER, 57, president of Hope Engineering Co., died at Houston, Tex., May 11. His firm had built oil and gas pipe lines for major oil companies for 34 years. He was president of Rio Grande Valley Gas Co., Durango Natural Gas Co. of Colorado, and Texas Eastern Oil Co. He was born in Pittsburgh, Pa.

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Union Oil Co. Contract to Build Two 13,000-Ton Tankers

Contracts calling for construction of two 13,000-ton tankers have been placed by Union Oil Co., according to W. L. Stewart, Jr., vice president, and are slated for delivery in 1942.

The vessels will be of the single-screw American three-island profile type, with straight-raked stems and cruiser sterns, and will be constructed by the Bethlehem Steel Co. at the Sparrows Point, Md., shipyard. They will have an overall length of 463 ft., a cargo capacity of 103,000 bbl. each, and will have a designed load speed of 13 knots from 3,500-hp. cross compound turbines, energized by steam at a working pressure of 400 lb. per sq. in

Sinclair Lets Contracts For 10 New Tankers

NEW YORK.—Sinclair Refining Co. has awarded contracts for construction of 10 high-speed tankers aggregating more than 130,000 deadweight tons. The expenditure involved is about $25,000,000.

THE MARKETS*

CRUDE OIL: Production in the United States rose to 3,831,014 bbl. per day in the past week, an increase of 147,845 bbl. per day over the total for the preceding week. The increase was almost entirely accounted for by increases of 89,600 bbl. per day in Texas; 40,500 bbl. per day in California, and 16,011 bbl. per day in Illinois.

REFINERY: Congestion of stocks at the Gulf Coast, with no indication of relief; confusion over prospects of export demand, and continued likelihood of carrying immense accumulation in excess material through the summer season keep the gasoline market weak. Tank-car prices on Gulf Coast undergo further cut. Somewhat better feeling in natural gasoline, but market still demoralized. Kerosene and light fuels easier in coastal areas, but holding well in interior.

TANK-WAGON AND POSTED DEALER: Continental cut tank-wagon and dealer prices sharply at points in Montana and several Oklahoma cities. Irregularity reported in other areas.

FINANCIAL: The oils suffered from the general market weakness, but fared better than the industrial group as a whole, and a few issues ended the week with gains. Average of 30 representative stocks for week ended May 11: High, 27.42; low, 26.11; close, 26.55. Week ended May 4: High, 27.21; low, 26.08; close, 26.85.

*Detailed information in market section.

ANNUAL REPORTS

		Net income	Earned per share
Standard Oil Co. (N. J.)	1939	$89,128,756	$3.26
	1938	76,053,170	2.86

PROGRAMS AND MEETINGS

Production and Chemical Sessions of A.G.A.

The joint committee conference of the production and chemical committees of the American Gas Association will be held at the Hotel Pennsylvania, New York, May 20-22. The program follows:

Monday, May 20

10 a.m.—W. K. Beard, chairman, gas production committee, Philadelphia, Pa.

Effect of Marketing and Refining Methods of the Oil Industry on Future Availability of Residue Enriching Oils, A. E. Pew, Jr., vice president, Sun Oil Co.

Empirical Relation Between the Physical Characteristics of an Oil and Its Yield as Determined by a Cracking Test, W. F. Kugel and E. M. Bliss, Public Service Electric & Gas Co., Harrison, N. J.

2 p.m.—S. J. Modzikowski, chairman, chemical committee, Chicago.

Second Progress Report on the Determination of Water Vapor in Gaseous Fuels, Dr. A. W. Gauger, F. C. Todd, E. K. Schluntz, and W. J. Wiseman, Pennsylvania State College, State College, Pa.

Tuesday, May 21

10 a.m.—Light-Oil Recovery From Coke-Oven Gas, W. Tiddy and M. J. Miller, Semet Solvay Engineering Corp., New York.

Motor Fuel From Coke-Oven Light Oil, B. J. C. Van der Hoeven, Koppers Co., engineering and construction division, Pittsburgh, Pa.

Sludge Inhibitor and Novel Still Used in Recovering Light Oils, O. W. Lusby and C. E. Utermohle, Consolidated Gas, Electric Light & Power Co. of Baltimore, Baltimore, Md.

Manufacture of High-B.T.U. Gas for Peak Load and Standby Purposes, H. M. Blain, Jr., New Orleans Public Service, Inc.

12:30 p.m.—Round table luncheon conferences. Coal Carbonization and Byproducts; Water-Gas Operation; Chemistry in the Gas Industry.

Wednesday, May 22

10 a.m.—Influence of Pilot Design on Tendency to Outage, R. M. Conner, director, A.G.A. testing laboratories.

Determination of the Cause of Pilot Outage, W. L. Shively, Boston Consolidated Gas Co.

Foundry Coke: Measurable Characteristics, B. P. Mulcahy, Citizens Gas & Coke Utility, Indianapolis.

A Study of the Theoretical Advantages of Low Air-Steam Ratios in the Manufacture of Blue Gas and Carbureted Water Gas, J. Hawley Taussig, Jr., Philadelphia Gas Works Co., Philadelphia, Pa.

2 p.m.—Report of gas-conditioning committee, L. J. Willien, chairman, Public Utility Engineering & Service Corp., Chicago.

Comparison of Different Packings in Absorption and Stripping, Prof. C. C. Furnas, Yale University.

Stresses and Strains Generated During Carbonization, V. J. Altieri, Eastern Gas & Fuel Associates, Everett, Mass.

Petroleum Accountants Will Meet at Indian Hills

The Petroleum Accountants Society of Oklahoma will hold its final meeting, before adjourning for the summer, at the Indian Hills Country Club, Tulsa, on May 17. Dinner will be served at 7 p.m.

In keeping with custom, and as a fitting climax to a successful year, the usual business formalities will be dispensed with and the afternoon and evening will be devoted entirely to the entertainment of members and their guests. The society is having as special guests all its guest speakers during the past year.

Wider Program Planned by Oil Belt Safety Council

ABILENE, Tex.—Preparations are well advanced for launching a greatly enlarged and intensified general safety program for the counties of West Central Texas served by the Oil Belt Safety Council, according to Walter S. Pope, Abilene, new president. Formal start of the region-wide, injury-reduction campaign has been set for May 23, when the new officers and committee members will hold their first business session in Abilene. Other new officers elected last week at the sixth annual conference in Brownwood are H. M. Monk, Cisco, vice president; and J. C. Watson of Abilene, secretary-treasurer. The executive committee is composed of L. V. Ford of Brownwood; M. L. Bird of Abilene; H. W. Lynn of Ballinger; I. T. Gilmer of Graham; H. C. Shelton, Rotan; and John Shriever, Sweetwater.

North Texas Geological Society Field Trip

The North Texas Geological Society is sponsoring a field trip across the Canyon and Strawn series in Young, Jack, Wise, Palo Pinto, Parker and Eastland counties, Texas, on May 25 and 26. The leader will be Monroe G. Cheney. Geologists will meet at the Driver Hotel in Graham, Tex., Friday evening, May 24, for a pretrip discussion of the Pennsylvanian of the area. The trip will begin at 8 a.m. Saturday, May 25, and will spend Saturday night at the Crazy Hotel in Mineral Wells. Those interested are requested to notify R. E. McPhail, Phillips Petroleum Co., Waggoner Building, Wichita Falls.

California Nomads View Alaskan Oil Film

A complete pictorial history of the Alaskan drilling operations of the Iniskin Drilling Co. was given at the May meeting of the Nomads at Los Angeles. Kodachrome moving pictures accompanying a lecture by R. E. Havenstraite, president of California Western Oil Co., brought out the difficulties encountered in drilling the test well on the west coast of Cook Inlet in southern Alaska and pictured much of the rugged but beautiful scenery in that territory. The fishing scenes made many of the audience want to get their rods and strike right out for Alaska.

Another honor guest at the dinner was Hale B. Soyster, chief engineer of the Petroleum Division of the U. S. Geological Survey, Washington, D. C. Guests from other countries included the following: F. W. van Bilderbeck, N. V. de Bataafsche Petroleum Maatschappij; B. Bongers of United British Oilfields of Trinidad, from Trinidad; Erno Bonebakker of B.P.M.; J. Domeroq of California Arabian Standard; O. A. Grainger of Kern Trinidad Oilfields, Ltd., from Trinidad; G. W. van Hillo of Creole Petroleum Corp., from Colombia; Karl Jauman of Attock Oil Co., from India; J. McPherson of California Arabian Standard; Clarence Ochs of Ecuadorian Oilfields, Ltd., from Ecuador; Jess Rector of Ganzo Azul, from Peru; Antonio Sanz-Agero of Texas Petroleum Co., of Venezuela; George Schepers of N. V. Koloniale Netherlandsche Maatschappij, from Sumatra; J. A. Thornton of B.P.M.; E. L. M. Trafford of B.P.M.; J. W. Burns of C.P.C., from Cucuta, Colombia; and L. C. McMorris of K.T.O., from Trinidad.

CALENDAR OF EVENTS

May

INTERNATIONAL PETROLEUM EXPOSITION, Tulsa, May 18-25.

AMERICAN GAS ASSOCIATION, technical section, production conference, Hotel Pennsylvania, New York, May 20-22.

AMERICAN PETROLEUM INSTITUTE, midyear meeting, Fort Worth, Tex., May 27-31.

NATIONAL OIL SCOUTS AND LAND MEN'S ASSOCIATION, annual convention, Hot Springs, Ark., May 30-June 1.

June

ILLINOIS-INDIANA PETROLEUM CONFERENCE, eighth annual meeting, Robinson, Ill., June 1.

NATIONAL ASSOCIATION OF PURCHASING AGENTS (Oil Company Buyers' Group) annual convention, Netherland-Plaza Hotel, Cincinnati, Ohio, June 3-6.

SOCIETY OF AUTOMOTIVE ENGINEERS, summer meeting, The Greenbrier, White Sulphur Springs, W. Va., June 9-14.

SOUTHWEST PETROLEUM CREDIT GROUP, San Antonio, Tex., June 17-20.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, Milwaukee, Wis., June 17-20.

PERMIAN BASIN ASSOCIATION, semiannual meeting, Odessa, Tex. June 21-22.

AMERICAN SOCIETY FOR TESTING MATERIALS, Chalfonte-Haddon Hall, Atlantic City, N. J., June 24-28.

ILLINOIS BASIN CHAPTER OF AMERICAN PETROLEUM INSTITUTE, McCurdy Hotel, Evansville, Ind., June 29.

September

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, Spokane, Wash., September 3-5.

AMERICAN CHEMICAL SOCIETY, Detroit, Mich., September 9-13.

NATIONAL PETROLEUM ASSOCIATION, thirty-eighth annual meeting, Hotel Traymore, Atlantic City, N. J., September 18-20.

NATIONAL LUBRICATING GREASE INSTITUTE, annual convention, Stevens Hotel, Chicago, Ill., September 30-October 1.

October

AMERICAN GAS ASSOCIATION, Atlantic City N. J., October 7-10.

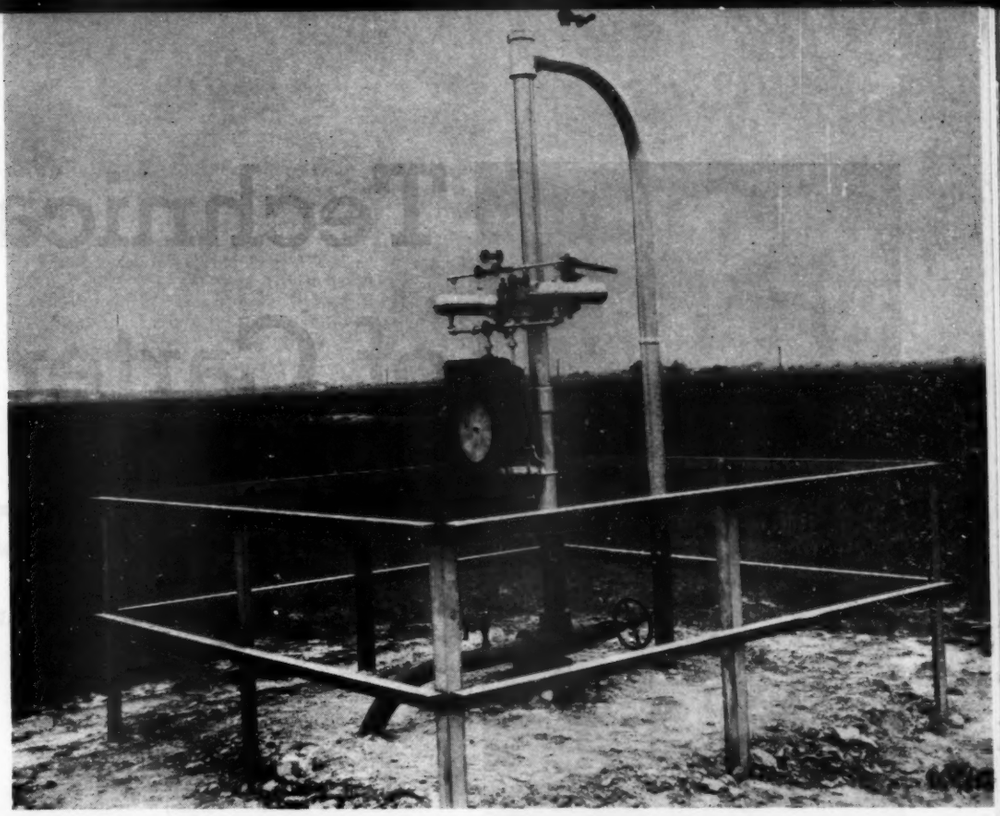
NATIONAL SAFETY CONGRESS, Stevens Hotel, Chicago, October 7-11.

INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA, eleventh annual meeting, Dallas, Tex., October 16-18.

TEXAS MID-CONTINENT OIL AND GAS ASSOCIATION, annual convention, celebrating Texas oil's forty-fifth birthday, Fort Worth, Tex., October 31-November 2.

November

AMERICAN PETROLEUM INSTITUTE, twenty first annual meeting, Stevens Hotel, Chicago, November 11-15.



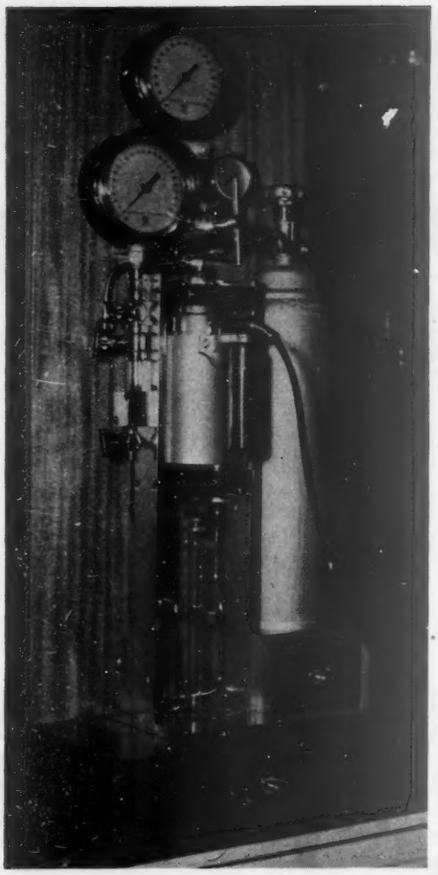
On input and producing wells it is important to know the amount of gas passing through the lines. This installation includes an adjustable choke for regulating the flow and a recording orifice meter for registering the gas volume. The steel fence protects the meter from range cattle

ENGINEERING & OPERATION

MAY 16, 1940

Technical Aspects of Carter Pressure Core Barrel

By PAUL REED



Testing equipment for investigating the wall-building properties of drilling muds

ALTHOUGH it has been apparent for some time that decisions affecting exploration and development operations could be arrived at more intelligently with data obtained from cores procured so that original reservoir conditions be kept intact for laboratory examination, such data have not been available to the industry because of difficulties in devising adequate equipment and effective methods. Recognizing the importance of these data, the production-research department of Carter Oil Co. has spent 2 years on the subject, in the course of which it has developed a pressure core barrel that is adequate for requirements. Furthermore, for studying the control of mud, which is of primary importance in correct coring, special testing equipment has been designed for this organization to assist in the work. This article will discuss the significance of what has been accomplished as well as the tools and instruments that have been developed.

The primary objective of Carter's project was to serve petroleum engineers, geologists, and executives by providing an analytical tool that would advance the technique of estimating oil in place in producing horizons. However, now that the pressure core barrel has been used in the field, it is clear that its value from a dollars-and-cents standpoint will be even greater for the production engineers and geologists who are directly in charge of operations in the field. The pressure core barrel accomplishes what is done by conventional core barrels and it has the additional advantage of bringing the core to the surface under the original reservoir pressure.

During the period when the Carter organization has been engaged in the project, the Bureau of Mines with the cooperation of the American Petroleum Institute has been working along somewhat parallel lines.

The vital importance of a core barrel which would bring a core to the surface under the original reservoir pressure has been emphasized particularly in the last 3 years since investigations of Humble Oil & Refining Co. and others indicated that estimates of oil in place should be revised to conform with the evidence that 25 to 40 per cent of the pore space in producing formations is filled with connate water.

While correct data on reservoir conditions increase the effectiveness of company policies in an intangible way, it cannot be evaluated as definitely as data which contribute directly to the discovery of new producing horizons which become positive additions to the company's resources. Frequently, in drilling wildcat wells in new country, there have been shows of oil in oil-bearing horizons that have been passed up because it has not been possible to get a shutoff when running drill-stem tests. In taking a core in the conventional manner the core may be washed out by the drilling mud. Oil may adhere to the sand grains of a core, but if the formation contains high-gravity oil or distillate, the core may come to the surface without a sign of oil. Some oil and most of the gas is forced out of the core by expansion of the gas as the pressure surrounding the core is reduced in withdrawing the

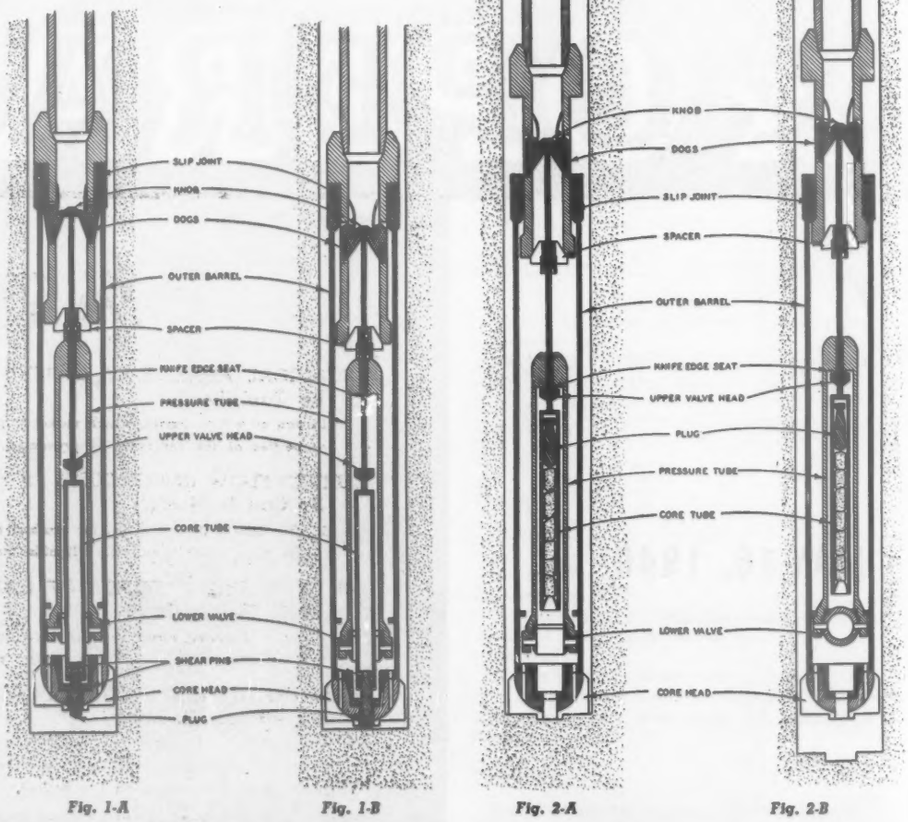


Fig. 1-A *Fig. 1-B* *Fig. 2-A* *Fig. 2-B*

Schematic drawing illustrating operating principles of pressure core barrel. Fig. 1-A, core barrel as it is lowered in well; Fig. 1-B, releasing operation on bottom; Fig. 2-A, lifting of drill pipe starts after core has been cut; Fig. 2-B, sealing of pressure tube after core has been lifted

core from the well. Having only a core with a slight smell, operators are confronted with the problem of deciding whether to set pipe to test or to drill ahead. If the test is unsuccessful, the possibility of testing lower horizons is somewhat restricted by the necessity of drilling ahead in a smaller hole. Furthermore, operators have been often misled by rich, dripping, bloody cores from formations that are incapable of producing oil because the reservoir is dead. There is no dependable way of accurately estimating gas-oil ratio from a dead core.

Only Device of Kind

The Carter core barrel is the only device that can bring cores to the surface with the gas as well as the oil which the formation contains. The valve at the bottom of the barrel shuts so that nothing gets out on the way up the hole. At the laboratory on the surface the pressure in the barrel can be measured. A gas valve can be opened, making it possible to meter this gas as it escapes from the barrel. In 13 tests it has been found that the gas-oil ratio of the core is within 10 per cent of the gas-oil ratio of the pool. Facts about a formation can be determined at the time the well is drilled which ordinarily can be determined only after the well has been producing for some time. From these data it is possible to predict whether the well will flow naturally or must be pumped, whether the well will produce at high or low gas-oil ratios, or whether it will be merely a gas well or a dry hole. In addition, since a pressure core should give more accurate data on the saturation of the core, it should be possible to predict more accurately the total amount of oil the well will produce. It should be realized that all these data can be obtained before the well is cased.

Some of the more obvious general applications of pressure cores and pressure-core data include the following:

1. A more certain determination of reservoir content than is furnished by the conventional non-pressure-type core barrel.
2. Location of gas caps and determination of content.
3. Studies of oil, gas, and water gradients through a producing zone.
4. Studies in well spacing.
5. Studies of oil remaining in place in depleted fields by drilling and coring intermediate wells.
6. Studies of various methods and rates of production by working on cores while cores are under pressure.
7. Studies of contamination of cores.

The first successful pressure core was taken in the Louden pool in Illinois on December 6, 1938. Since that time a total of 64 tests have been made with the pressure core barrel in Illinois, Arkansas, and Oklahoma. These tests demonstrated that pressure cores can be consistently recovered with the device. At present the core barrel is being used in research conducted in the Louden pool, Illinois, where it has been used already for determining gas caps. These gas caps are not large and data derived from studying them have aided in determining structure.

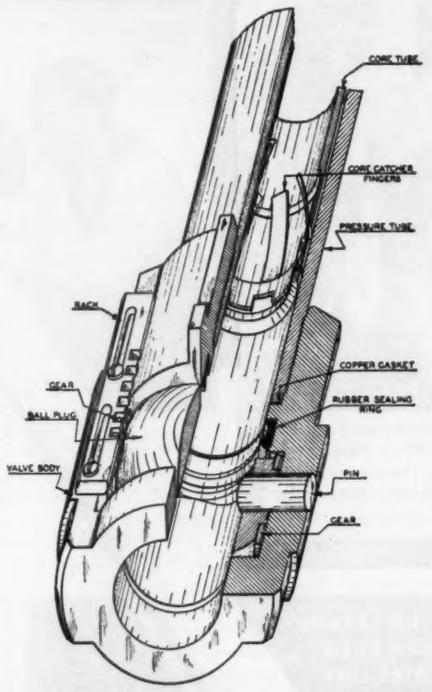
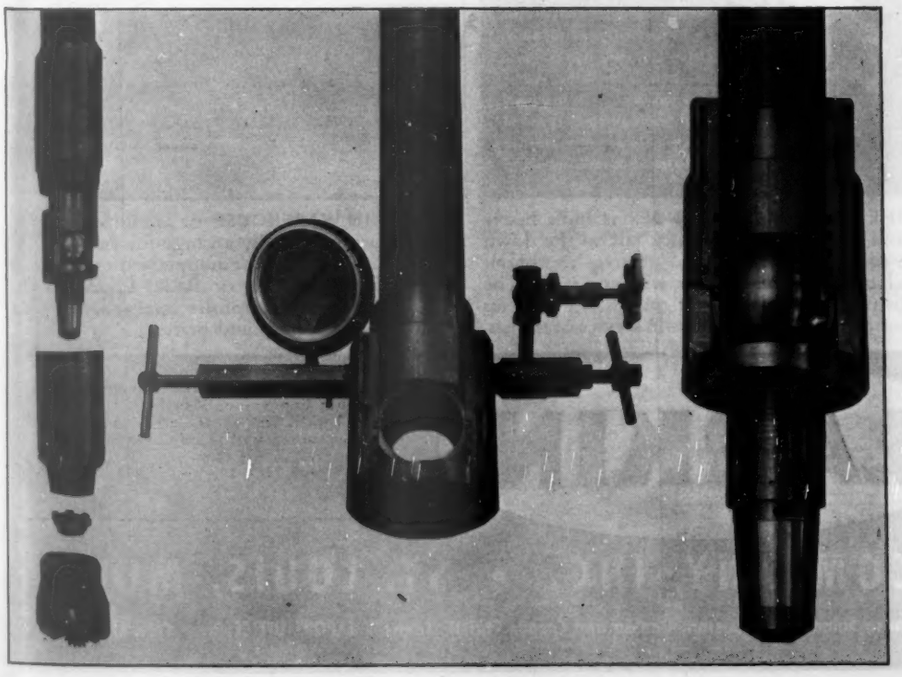


Fig. 3 (Above) Detail of lower valve assembly. (Below) Photographs showing (left) lower valve and parts comprising bottom part of barrel; (center) lower valve in closed position with equipment for gaging gas pressure and venting gas from barrel in the laboratory; valve assembly (right) with valve open



Another thing which the core barrel is expected to accomplish is the coring of unconsolidated sand, which cannot be done with the conventional core barrel. In parts of the Oklahoma City field, where unconsolidated sand flowed from wells, it has not been possible to obtain cores by conventional methods. Further, although the pressure core barrel was developed as an aid in producing crude oil, it will be valuable also in connection with natural-gas and distillate operations.

The first pressure core barrel, designed and tested by Carter, cut a core 1⅝ in. in diameter. The results of trials have been reported in an A.P.I. paper of Ben W. Sewell in the November 17, 1939, issue of The Oil and Gas Journal. A new core barrel has just been completed which in design is very similar to the first barrel except that it is now possible to cut a core 2⅜ in. in diameter. This barrel is now being used in extensive field trials and a complete program of pressure-core analysis is in progress.

Figs. 1 and 2, illustrating the principles of operation of the Carter pressure core barrel, are schematic drawings.

Fig. 1-*A* shows the core barrel as it is lowered into the well; Fig. 1-*B* shows the barrel as it reaches the bottom of the hole and releases; Fig. 2-*A* shows the core having been cut and the drill pipe starting to be lifted, while Fig. 2-*B* shows the core lifted up in the pressure tube and sealed therein.

The barrel is held in a retracted position as shown in Fig. 1-*A* by the two locking dogs in the upper part of the assembly. In Fig. 1-*B* the dogs have latched under the knob, which held them outward previously; thus they release the slip joint. This releasing action is caused by the plug extending ahead of the core head striking bottom first. After the core is cut the drill pipe is lifted. This lifts the core up into the pressure tube as shown in Fig. 2-*A*. This lifting action also closes the upper and lower valves in the pressure tube, so that the entire core barrel may be withdrawn. Fig. 3 is a sketch of the lower valve assembly.

Length of Core

The pressure core barrel now being used takes a core 8 ft., 6 in. long. It has been limited in length to make it more portable. The length of core which can be taken is limited by the time it is possible for core cutters to cut properly. The cutters of the pressure core barrel are conventional-type Reed bits. In the Louden pool, pressure cores are being taken in a 7⅞-in. hole. The first core taken has a 7½-in. diameter. The second core has a 7¼-in. diameter. Not more than two cores in succession are being taken.

Since drilling fluid has a tendency to precede the drill into formations, special attention has been directed by the production-research department of Carter Oil Co. to developing methods for preventing water from percolating ahead of the bit.

The rate of penetration of water in this manner is a function of the speed of the bit and the vertical permeability of the formations. It became necessary to have an instrument to determine the filter cake properties of mud. In fact, it may be remarked that in preliminary investigations it was found that two of the most important points are cutting a core of as large a diameter as possible, and mud control. Accordingly the barrel was redesigned to cut a larger core, and an extensive study of mud control and treatment was planned. In order to accomplish this it was felt that an apparatus was required that would measure the rate of water loss from the drilling mud

(Continued on Page 129)

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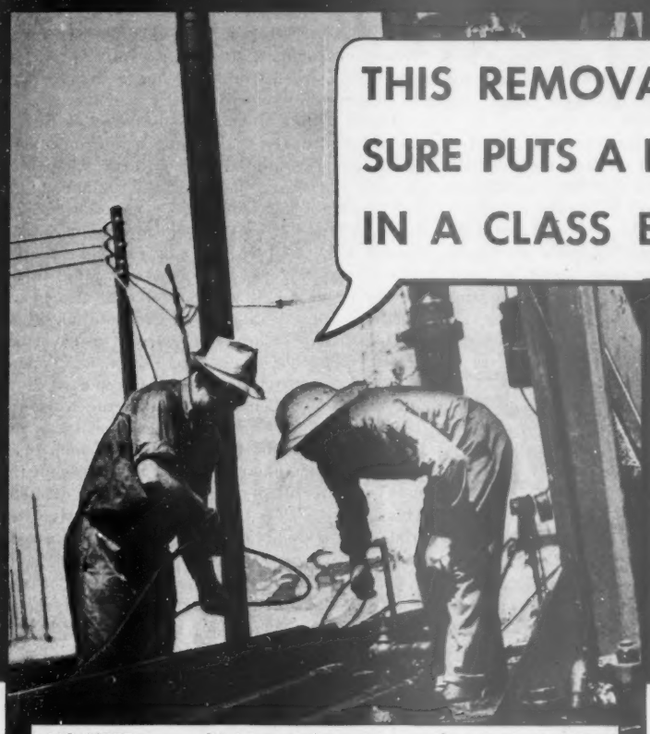

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Curved Flow in Conduits of Constant Cross-Section

By CARL H. NORDELL
Consulting Hydraulic Engineer,
Michigan Steel Casting Co.

This is the first of two articles of particular interest to refiners on the subject of friction losses when transferring liquids through pipes and fittings of rough and smooth surfaces and through bends of 45°, 90° and 180°. The second article will be presented in an early issue.

HYDRAULIC problems in general cannot be counted among the outstanding triumphs of engineering science. Here all too frequently the rule of thumb still holds sway, albeit in most cases a sufficiently refined rule of thumb to meet the practical needs of the designer. This adjustment to practical needs, however, can scarcely be claimed for the existing information concerning the loss in pressure which is experienced in pipe bends. Resistance to straight-line fluid flow can be calculated to a reasonable degree of accuracy but curved flow has thus far pretty much defied either rational or practical analysis or calculation.

In many fluid conduit systems this lack of exact knowledge has not had serious repercussions, especially where the lines are long and the turns infrequent, but the oil industry is singularly afflicted by hydraulic problems involving curved flow, particularly in refinery heaters and coolers where the oil flows through "coils" made up of straight pipes connected by return bends. Then, too, oil and gas are conveyed long distances in pipe lines whose resistance to the passage of fluid is of paramount importance.

The approach to the problem of curved flow can be made from two viewpoints, the purely theoretical or the purely empirical, but neither of these can yield a satisfactory answer. The modern aproach to hydraulic problems in general has been summed up so clearly by Rouse in his "Fluid Mechanics for Hydraulic Engineers" that the writer cannot forbear quoting from his introductory paragraphs, which, by the way, should be "must" reading for hydraulicians and indeed, for that matter, all engineers. In speaking of hydraulic problems he says, "Rigorous mathematical analysis usually encounters unsurmountable obstacles, and simplifying assumptions without the benefit of experimental background can often lead to completely fallacious conclusions; fluid mechanics avoids this difficulty by restricting its assumptions to those which experience and sound physical reasoning have shown to be without serious effect upon the essential features of the problem."

While straight mathematical analysis can scarcely be expected to solve the exceedingly complex phenomenon of curved fluid flow, empirical hydraulics has been similarly unsuccessful. As Rouse later observes in commenting upon the losses in pipe bends found by various investigators: "Indeed, almost as many contradictory curves have been published as there have been investigators engaged in such research." This is well illustrated in Fig. 1, which is reproduced from research paper R.P. 1110 by K. Hilding Beij, of the National Bureau of Standards.

These researches have been made by able people and as it can hardly be presumed that the fluid behaved capriciously it is at once apparent that in seeking an answer the question has either been improperly put or the answer has been misinterpreted. The research worker sets up his apparatus which becomes, in effect, a calculating machine in which the fluid itself performs the most intricate mathematical calculations with the utmost ease and never a false answer. It always solves the problem with exactness, and always by some method of "least work." It does not, however, generalize its answer nor does it as the human calculator is wont to do, "neglect friction."

If the investigator has not taken this fully into account and has not set up his apparatus so that the question actually asked of the fluid is the one he thinks he has asked, the result is a misunderstanding and more or less a welter of conflicting data such as is shown in Fig. 1.

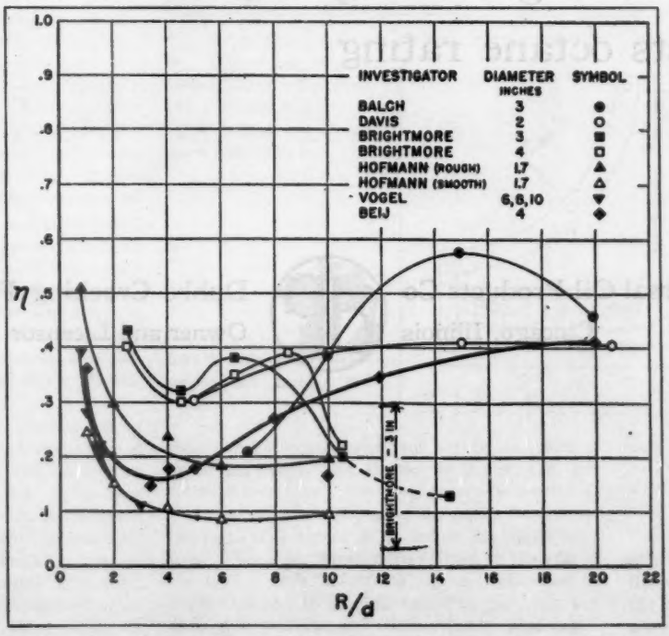


Fig. 1—Bend coefficients found by various investigators. (From R. P. 1110 by Beij, National Bureau of Standards)

Unknown friction factors in the apparatus appear to the writer to have been the greatest cause of difficulty. Many of the experiments have been performed with iron pipe and bends and practically all have involved a measurement or computation of pressure losses through comparatively long sections of pipe. The rusting of the pipe affected the friction losses unevenly and made the accurate computation or measurement for short sections inaccurate.

Hoffman worked with brass pipes very accurately finished yet he encountered inexplicable variations of pressure drop along the pipe lines of which he says: "Part of the irregularities may be due to variations in pipe diameter at the measuring points and part to small variations in the form of measuring holes and part, perhaps, even in spite of careful construction, to imperfect flange connections; however, no conclusive reason for them could be ascertained."

What makes these irregularities so disturbing is the fact that owing to the way these experiments are performed, the bend loss is ascertained as a small difference between the large overall measurements, and therefore what might be a small inexactness in the overall measurements shows up as a serious error in bend losses.

Hoffman states that the bend coefficient in his experiment is "always small compared to the total observed loss . . . with smooth bends 4 to 10 per cent . . . and rough bends 4½ to 13 per cent. It is therefore unavoidable that extremely small errors of observation have an appreciable effect on the computed value. . . . In the most unfavorable case an error of only 0.2 mm. of mercury can affect the value in the ratio of 7.8." In other words an exceedingly small observational error might effect the result 12½ per cent. Also it is apparent that the errors inherent in the assumption that the friction loss in pipe lines was uniform or could be approximated by a hypothetical distribution of the known irregularities may effect the end results even more seriously.

If this were true of Hoffman's brass pipes and bends, these sources of error bulk much larger in the case of iron pipes and bends, for as Beij observes: "The great disadvantage of ferrous pipes for hydraulic experiments is their progressive rusting which results in a continually changing roughness. With care in manipulation, and with unlimited time for work, it is possible to obtain the average resistance coefficients for straight pipes varying not more than 5 per cent all along the line. The difficulties are increased when dealing with bends, for it is not possible

A western refiner says—

Ninety-six per cent of all gasoline manufactured by us is leaded and of course going out either as "Q" or Ethyl but I fully understand that without Dubbscracking we could not exist under the present scheme of things

Maybe you can exist without Dubbscracking but why punish yourself? You can do so much better with it It pays its own way—and then some

And U. O. P. catalytic polymerization increases gasoline yield still more and boosts octane rating

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

to make determinations of friction coefficients after the pipe has been bent. The worst effect, however, appears at the piezometer holes. Here ridges of rust are built up around the holes in such a way as to falsify pressure indications.

"Thus regardless of the relative magnitude of roughness effects, for a final solution of the bend problem it will be necessary to deal first with smooth pipes and then with pipes of known and varying roughness; that is, with pipes artificially roughened. A start in this direction has been made by Hoffman."

When dealing with cast iron bends instead of bent pipe, the uncertainty is even more exaggerated for the hydraulic coefficient of the casting wall texture cannot be measured and it is impossible to estimate with sufficient accuracy for accurate research figures.

In addition to all these difficulties there is a strong probability that the pressure readings along the pipe following the bend may often have been misinterpreted. All investigators have found it difficult, if not impossible, to establish bend resistance by means of direct-pressure readings immediately in front of and immediately following the bend. In fact the writer in some of his early experimental works found that such a procedure actually, in one instance, showed a gain in pressure around the bend which was, of course, absurd.

The reason for this anomaly is not hard to find. The water passing the bend is thrown into rotation. This rotation is not a simple spinning but a double spiral. Nevertheless it must necessarily, by reason of the centrifugal effect, cause a greater pressure at the periphery of the pipe than in the center of the vortices. Hence a pressure reading obtained at the outside of the pipe (a frequent procedure) is not the average pressure at that point but one somewhat higher.

Secondary Currents

The existence of these rotational motions is well known. Yarnell calls them "secondary currents." Curiously enough, most investigators have ignored or glossed over the effect of secondary currents and have attributed all of the loss in the downstream tangent other than normal pipe friction to increased frictional loss induced by the turbulence generated in the bend. Undoubtedly the turbulent flow does produce increased friction loss in the tangent, but the writer is inclined to attribute a considerable portion of the apparent loss of pressure in the downstream tangent to the dying out of the rotational flow and the decrease of centrifugal pressure. On the other hand Keulegan and Beij, of the Bureau of Standards, believe that the loss in the tangent is due mainly to the turbulence of the flow and that the centrifugal effects die out in a distance of one or two diameters downstream.

The writer's experiments were so designed that many of the sources in error in previous experiments were evaded. Perhaps the word "designed" is not entirely accurate for the truth of the matter is that the experimental procedure was more or less stumbled upon in the course of an investigation which was not originated primarily to establish losses in bends of uniform circular cross-section.

In the course of some research undertaken in an analogous field, namely the radial expansion of fluids against a flat plate, interest was aroused at first in the theoretics of the problem. From here the thought led directly to pipe bends and in delving into the work of the investigators in this field the great difference found in the losses of smooth bends and of rough bends was thought significant.

It seemed to the writer that a possible explanation lay in the retardation of braking effect of roughness on the "secondary currents"—the rotational components of flow in the bend.

Accordingly an experiment was devised with very simple apparatus to determine approximately at first whether smooth bends actually afforded very much less resistance than rough bends, and if this excessive resistance could be lessened by easing the secondary currents. It was immediately apparent that the answer to both these questions was positive and the experimental method used proved so simple and gave such excellent and harmonious readings that the technique was polished up a bit with what appears to be very gratifying results.

Description of Method

Briefly the method was to allow the liquid to escape from a measuring tank through the bend to be tested together with its tangent pipes. First the amount of time of emptying a measured amount of water under a fixed head through the tangent pipes alone was noted. The bend was then inserted between the tangents and the time of discharge again noted. The observed retardation caused by the bend answered quite quickly the question of comparative loss between rough and smooth bends and as the experiment proceeded it became evident that the absolute loss could be readily calculated from the same data. The arrangements and dimensions of the apparatus is shown in Fig. 2.

The measuring tank was approximately 3 by 4 ft. with a rounded outlet near the bottom to which was attached 18 in. of 2-in. galvanized iron pipe; then came a box elbow, which will be described in detail presently, and finally 36 in. of 2-in. galvanized iron pipe. This was carefully leveled so that the center of the pipe at the outlet was always the same distance of 12 in. below the upper hook gage. Two hook gages were affixed to the side of the tank a little below the top and separated by a distance of 2.16 in. The outlet of the 36-in. tangent pipe was stopped with ordinary pipe cap.

The procedure was to fill the box to a point several inches above the upper hook. The pipe cap was then carefully and slowly removed so that the discharge was started gradually and allowed to increase rather slowly to its maximum. This was found to be important, for a too rapid opening would produce surges that affected accuracy materially. A sliding gate control was tried but it was soon found that braking the flow by hand with the cap was perfectly satisfactory and less troublesome.

The time of emptying between the hook gages was observed by means of a stop watch, the pointer of which would make a complete revolution in 30 seconds. The face was graduated in tenths of a second and was read to the nearest 0.05 of a second.

The ease with which accurate readings could be obtained from this simple apparatus was rather surprising. The writer at first thought that there might be an appreciable lag between the exact instant of the hook gages breaking through the water film and the starting and stopping of the watch. This apparently is not the case for the falling film approaches the point of the hook gage like a runner approaching the tape. The observer senses this rate of approach and the lag error is very slight. As the lag on the upper gage is compensated by a presumably equal lag on the lower gage the net error must be very small indeed. In a series of check readings, four of which were made with one setup and three made later after disassembly and reassembly, the maximum variations from the average reading was only 0.05 second which would affect the end result by only $0.01 \frac{V^2}{2g}$.

It was at first thought the assumption that the effective head to be measured from the level of the water in the measuring box to the center of the pipe might not be strictly accurate. However, a series of check readings at heads above and below the 12 in. selected showed that any error involved in this assumption was small and well within the

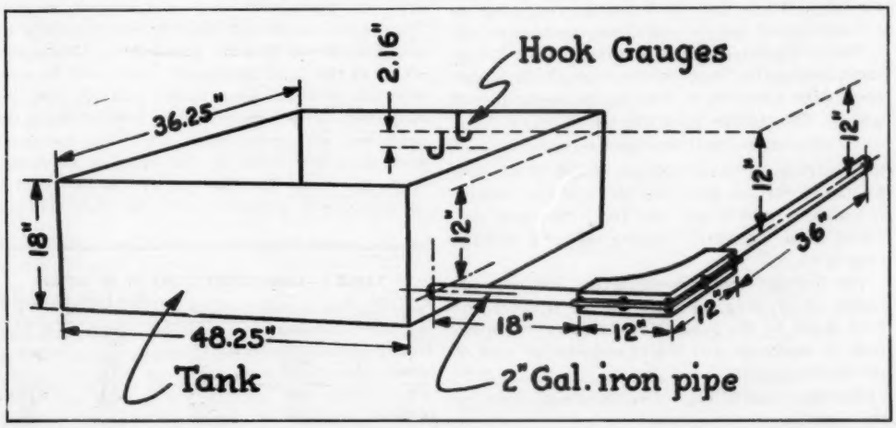


Fig. 2—(Above) Layout for determining relative friction losses when passing a definite quantity of liquid through various pipes and fittings

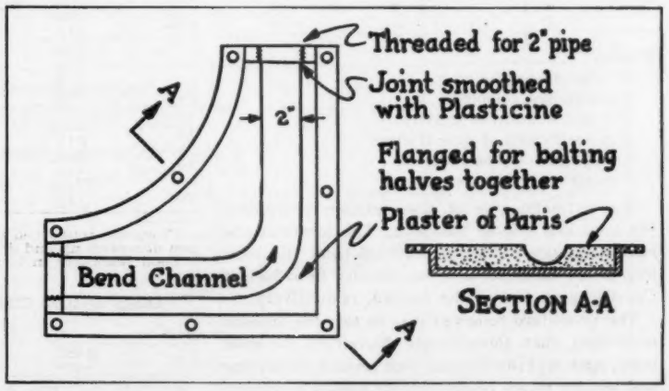


Fig. 3—(Right) Box-elbow section for testing 90° bends

limits of experimental error.

Joint difficulties in testing the friction resistance of the two tangent pipes was eliminated by butting the two pipes against each other and making the closure by means of friction tape wound around the outside, a procedure permitted by the low pressure employed.

The box elbow for testing 90° bends is shown in Fig. 3. This was essentially a split box considerably larger in size than the bend to be tested. Threaded connections were provided to attach the tangent pipes. The bend channels were cast in plaster of paris from accurate wooden patterns which gave a very smooth finish. They were then shellacked with two or three coats of shellac till glossy. This was the "smooth" surface. The rough surface was obtained by coating the bend with shellac and then running over the surface a rather coarse sand, producing a very uniform coating much like a No. 2 sandpaper. A finer grade of sand was also used for a few tests, which gave a surface like medium fine sandpaper. No sand analysis was made but the much more significant hydraulic roughness was established by making similar coatings on a 12-in. split section of straight pipe. The coarse sand gave a coefficient of $f = 0.0482$, while the finer sand gave $f = 0.038$ in the formula $h = f\frac{L}{D}\frac{V^2}{2g}$ in which h = loss of head, L = length, D = diameter, V = mean velocity and g the acceleration constant of gravity. Similarly the shellacked surface was tested and showed a coefficient of $f = 0.015$. These were at velocities very close to 6 ft. per second and the water temperature was 60°.

The total head, H, was determined in the following manner. The head at the level of the upper hook gage was 1.00 ft. and at the lower it was 0.82 ft. The average head was therefore

$$H = 0.82 + \tfrac{1}{2}(1.00 - 0.82) = 0.91 \text{ ft.}$$

to a sufficiently close approximation. There is a further correction due to the fact that the velocity is changing during the test run. This was estimated to be +0.005 ft., making the total average head 0.915 ft.

The average velocity during the run was obtained by dividing the tank volume between the hook gages by the product of the observed lapsed time of discharge and the cross-sectional area of the discharge pipe.

The bend coefficients were then calculated by the relation:

$$C\frac{V^2}{2g} = H - f\frac{L}{D}\frac{V^2}{2g} - \frac{V^2}{2g}$$

Where:

C = bend coefficient
V = average velocity
g = acceleration of gravity
f = coefficient of pipe friction
L = length of pipe tangents
D = diameter of pipe

The left-hand side of the equation represents the total loss due to the bend. The terms of the right-hand side represent the total head, the head loss in the tangents and the velocity head lost at the discharge end of the system, respectively.

The procedure followed was to test the smooth bend first, then immediately disconnect the split bend, open and sand it and then replace in the line and test for rough resistance. As will be apparent, the bends were in the line and in contact with the water only a matter of minutes, and hence the plaster of paris with its shellac coating had no time to deteriorate. The adherence of the sand for the short period of time required seemed to be perfect.

The rough bends were tested with the smooth approach tangents. This might be thought to affect the results, but when these experiments were started it was the writer's idea to simulate conditions in the average pipe line where the bends

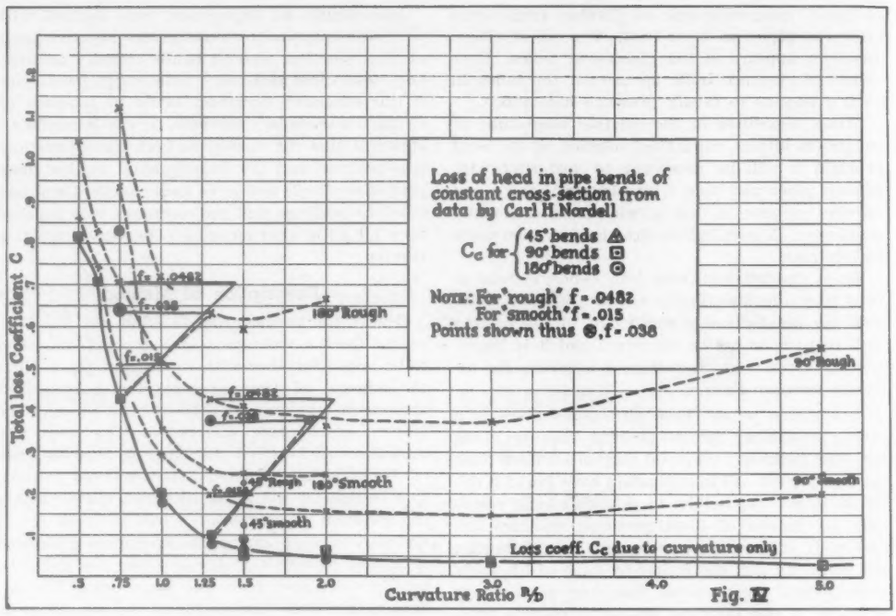

Loss of head in pipe bends of constant cross-section from data by Carl H. Nordell
Cc for { 45° bends, 90° bends, 180° bends
Note: For "rough" f = .0482
For "smooth" f = .015
Points shown thus ⊛, f = .038
Total loss Coefficient C
Curvature Ratio R/D
180° Rough
90° Rough
180° Smooth
90° Smooth
45° Rough
45° Smooth
Loss coeff. Cc due to curvature only
Fig. 4

Fig. 4—Relationship of friction losses among smooth and rough pipes of 45°, 90° and 180° bends

are cast and are usually somewhat rougher than the connecting pipes. One series of tests, however, was made with roughened tangents as well. They were roughened about three diameters up and downstream and this produced no measurable effect in the bend resistance. As it will be seen later on, it would seem rather unlikely that the roughness of the pipe preceding and following the bend has any great effect upon the resistance itself from the form of the equation developed from this data. The flow pattern in the bend is so completely changed from the flow pattern in the straight pipe that the small difference in velocity distribution between rough and smooth pipe for the lead in tangent evidently affects the results but little.

As will be appreciated, the outlined method of testing bend resistance as well as the plan employed for shaping the bends themselves was so rapid and so flexible that a very large number of bends could be constructed and tested.

In all, some 400 bends were thus tested, the greater proportion of these being of modified cross-section in the endeavor to lessen the bend coefficient. This endeavor was quite successful, but it is not the purpose of this article to describe these particular modifications. That has been left for a subsequent article and is of course a matter of great interest from the practical standpoint. These modified bends have been rated on the percentage of resistance saved, over the conventional bends here described, and it is therefore quite necessary that the conventional bend coefficients be set forth. The saving or improvement seems to be quite uniform regardless of curvature, angle of the bend, or wall texture.

TABLE 1—LOSS COEFFICIENT IN 90° BENDS

R/D	f	Vel.	Observed C	Computed C
0.5	0.0482	5.95	1.035	...
	.015	5.02	.86	...
0.625	.0482	5.20	.825	...
	.015	5.07	.723	...
0.75	.0482	5.25	.701	0.755
	.015	5.47	.510	.55
	.038	5.33	.613	.69
	*.038	5.15	.636	.69
0.10	.0482	5.43	.512	.495
	.015	5.80	.284	.284
1.31	.0482	5.63	.411	.403
	*.038	5.70	.367	.338
	.015	6.02	.186	.187
1.5	.0482	5.66	.397	.382
	.015	6.07	.169	.170
2.0	.0482	5.74	.345	.372
	.015	6.12	.154	.138
3.0	.0482	5.76	.359	.418
	.015	6.17	.136	.139
5.0	.0482	5.53	.549	.549
	.015	6.12	.199	.174

*Tangents roughened to correspond with bend about two diameters up and downstream.
Total resistance in bend equals.

TABLE 2—LOSS COEFFICIENT IN 180° BENDS

R/D	f	Vel.	Observed C	Computed C
0.75	0.482	4.78	1.12	1.17
	.015	4.94	.93	.60
1.0	.0482	5.67	.716	.70
	.015	5.17	.342	.35
1.31	.0482	5.43	.621	.602
	.015	6.02	.245	.256
1.5	.0482	5 37	.553	.602
	.015	5.38	.236	.242
2.0	.0482	4.97	.668	.609
	.015	5.84	.238	.212

TABLE 3—LOSS COEFFICIENT IN 45° BENDS

R/D	f	Vel.	Observed C	Computed C
1.5	0.0482	5.92	21.3	22.5
	.015	6.07	11.6	11.8

Number of Bends

Of standard bends there were five 180° bends, nine 90° bends and one 45° bend, each of which was tested with both rough and smooth walls. This gave a total of 30 bend-resistance results, which are shown in Tables 1, 2 and 3. After completing the first installment of this work the data was carefully inspected to see whether it would fall into some law which might be expressed by a general formula. Early in the proceedings it was noted that over quite a range of curvature, i.e., R/D, the amount of resistance added by the roughening of the bend seemed to remain quite stationary. Evidently the friction coefficient for the shorter and sharper bends was much higher than that for longer bends of more moderate curvatures, in order to bring about this partial equalization. Also since the friction coefficients for corresponding rough and smooth straight pipe had been found by test, it was readily determined that there seemed to be a resistance in the sharper bends at least which was not affected by the angle of the bend or wall texture.

This residual resistance is what has been termed by Beij a "deflection coefficient." In the present

case this deflection coefficient was found by a simple proportion which is quite striking when shown graphically. The total loss in the bend is assumed to consist of two parts, one of which is dependent only upon the curvature ratio R/D of the bend and one of which is proportional to the friction coefficient of straight pipe having the same wall roughness as the bend. In Fig. 4 the observed loss coefficients C for the bends are plotted as ordinates against the curvature ratios R/D. The following graphical construction will then give the loss due to curature ratio only, according to the above assumptions. For example, take the 90° bends with $R/D = 0.75$. From the upper point representing the total loss coefficient C for a rough bend draw the horizontal line proportional to $f = 0.0482$. From the lower point representing the total loss coefficient for a smooth bend draw a horizontal line proportional to $f = 0.015$. Join the ends of these horizontal lines by a straight line which is produced to cut the ordinate $R/D = 0.75$ at a value of 0.43. This represents the loss in a 90° bend due to curvature only.

At this same ordinate is graphically shown the same construction for the observed loss of $f = 0.038$ and at ordinate $R/D = 1.31$ is shown similar construction. It will be noticed that the check is rather close. Points similarly determined by 180° bends and one 45° bend are also shown on the chart and the agreement is remarkably close. This relationship was not discovered until some time after the experimental work had been suspended for the time being or additional checks would have been attempted in the longer radii where the points are too few for a good observed determination of deflection coefficient.

Neverthless is was found that the expression $\frac{0.1}{(R/D - 0.275)^2}$ fits the observed values of this deflection coefficient C_c very well and the total loss due to deflection is

$$C_c \frac{V^2}{2g} = H_d = \frac{0.1}{(R/D - 0.275)^2} \frac{V^2}{2g}$$

It is very interesting to observe the close correspondence between the values of the deflection coefficient thus computed and the values found by Beij and Richter.

VALUES OF C_c

R/D	Beij	Richter	Computed
0.97	0.18	0.34	0.20
1.47	.03	.06	.09
3.35	—.03	.02	.01
4.04	.00	.03	.006
4.97	—.01	.04	.004

This is a rather remarkable agreement or coincidence in view of the fact that Beij arrived at his results by a totally different computation. From curvature 5 on out Beij's and Richter's coefficients again increase, whereas the author's formula would show continuously diminishing values. It may be that beyond $R/D = 5$ the formula does not apply as the writer's experiments were not pushed into this region. The deflection coefficients for 180° bends show very good correspondence with the 90° bends when R/D is greater than unity. At sharper curvatures, however, the 180° bends and the 90° part company and the deflection coefficient value for the 180° becomes nearly twice as great as that for the 90°. Evidently the flow pattern changes radically at this point, at least in the 180°. The formula as developed will still fit fairly accurately the 90° bend at $R/D = 0.75$ but not at the sharper radii. Too few data are available to predict the behavior of the 45° bend at curvatures sharper than probably 1.25. It is felt, however, that for more moderate curvatures than this the formula would hold for 45° bends to at least curvature $R/D = 5$.

The total observed bend resistance minus the deflection coefficient is of course the frictional component of bend resistance. The values derived from the author's tests show values very much greater than those for straight pipe. At $R/D = 1$ the friction is four times as great as in the equivalent straight pipe. At $R/D = 5$ the value of this multiplier is 1.43. The formula $(\frac{1 + R/D}{R/D})^3$ was was found to fit these multiplying factors remarkably well for 90° bends and for the single value of the 45° bend. If we represent the friction resistance of equivalent straight pipe by H_s, the expression for the loss in the bend, due to wall friction becomes $(\frac{1 + R/D}{R/D})^3 H_s$. For the 180° bends this gave values too high to fit the author's tests. If, however, a constant of 0.85 is used for the 180° bends the agreement of both "rough" and "smooth" values as observed becomes remarkably close.

As $H_s = f \frac{L}{D} \frac{V^2}{2g}$ we have

$$C \frac{V^2}{2g} = H_L = [C_c + A(\frac{1 + R/D}{R/D})^3 f \frac{L}{D}] \frac{V^2}{2g}$$

where $A = 1.0$ for 45° and 90° bends and equals 0.85 for 180° bends. If we now substitute for $A \frac{L}{D}$ the expression πB where B denotes the angle of the bend multiplied by A and is 0.125 for 45° bends, 0.25 for 90° bends and 0.425 for 180° bends, we may write the wall friction coefficient equals

$$C_f = \pi B f (\frac{1 + R/D}{R/D})^3$$

and since this deflection coefficient

$$C_c = \frac{0.1}{(R/D - 0.275)^2}$$

the final formula becomes

$$C \frac{V^2}{2g} = H_L = (C_c + C_f) \frac{V^2}{2g}$$

This formula was used for the "computed" values of C in Tables 1, 2 and 3 and to plot the full-line curves in Fig. 5. It will be noted that the correspondence between computed and observed values is very good indeed.

This formula might be described as an engineer's formula. It is not entirely rational and so will not satisfy the hydraulician. The writer suspects that when sufficient data has been assembled and a more complete theory evolved, the second term of the formula will be found more nearly rational than at first. The constant 0.275 in the denominator of the first term is in all likelihood not a constant but a variable embracing both R/D and some expression for the angle and length of the bend. It may well be, however, that the complete formula will become too cumbersome for engineering use. As it stands it is believed to give quite accurate values for the three most common angles of bends within the limits stated.

As a check on the formula, experimental data for bends of 180°, 90°, and 45° of the same curvature made with nonferrous smooth pipe and therefore quite likely accurate are those of Yarnell. The curvature was 1.375, the bends of 45°, 90°, and 180°, the pipe was 6-in. and the material celluloid. The friction coefficient established in straight line was 0.0151. The bend coefficients of Yarnell's experiments, which were extremely elaborate, together with values computed from the author's formula, are shown below.

R/D	Angle of bend	Yarnell observed C*	Computed from formula
1.375	45°	0.126	0.131
1.375	90°	.182	.179
1.375	180°	.254	.247

*Yarnell in common with most investigators deducted equivalent straight-pipe friction from his observed results to establish his bend coefficients. These have been added for the values in the column.

Hoffman's work with smooth and rough bends has already been mentioned. The bends were of brass, split longitudinally so that they could be machined inside. They were tested in a line of brass piping of the same size, 1.7 in. in diameter, in the conventional manner, that is to say by noting the pressure loss with manometer readings from points some distance upstream to points some 10 diameters downstream. After obtaining pressure readings with the bend in place, it was removed and a straight piece of pipe of equal length to the bend was substituted. The difference between pressure drops with curved pipe and with straight substitute pipe was Hoffman's bend resistance. To obtain C in the following table the loss in an equal length of straight pipe has been added. The agreement with the author's formula is good.

R/D	Hoffman C*	Computed C†
1	0.249	0.283
2	.173	.141
4	.176	.157
6	.214	.195
10	.31	.285

*Bend coefficients for 5.5 m. per second.
†f is taken as 0.015, which is Hoffman's smooth f for this velocity.

If Hoffman's smooth readings for 2.5 m. per sec-

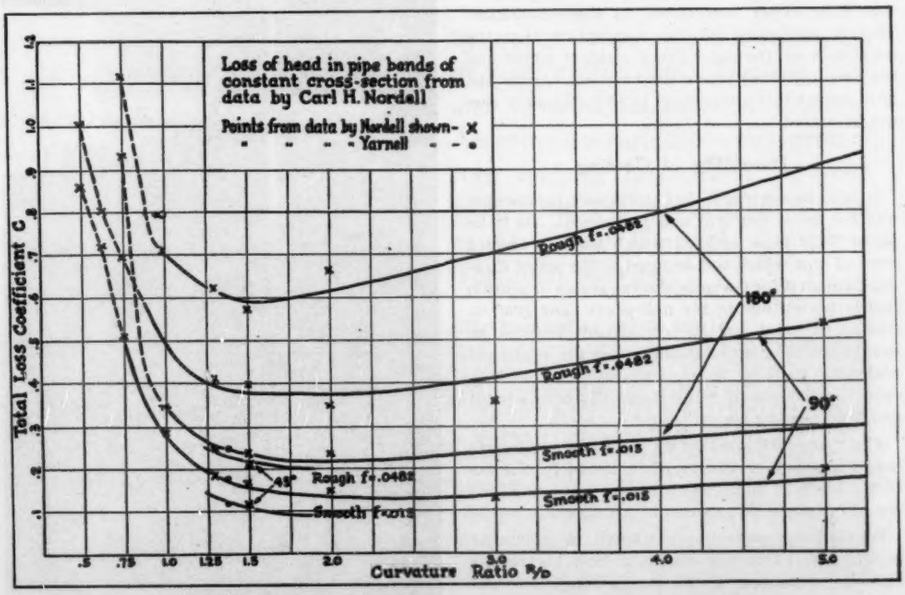


Fig. 5—Relationship of friction losses between smooth and rough surfaces

ond are compared with computed figures the agreement between them and the formula is even better as $R/D = 1$ falls into line. The coefficient of friction f, however, becomes 0.020 instead of Hoffman's 0.018 and is nearer the coefficient of 0.0195 ascribed by him to Blasius.

It is interesting to note that Hoffman's readings for R/D equal 6 and 10 are substantiated by the formula and do not exhibit the rising tendency found by so many investigators.

The comparison of the formula with Hoffman's figures for rough bends is not nearly so close though the agreement with longer bends is not bad. The whole question of agreement here hinges upon the value of f, which Hoffman found to average 0.024 in his roughened pipe. The comparison is made therefore by figuring what f would have to hold in his bends to substantiate his figures by the formula.

R/D	Hoffman observed C	Hoffman f*	Computed f†
1	0.5278	0.024	0.0530
2	.3556	.024	.0460
4	.3712	.024	.0385
6	.3868	.024	.0298
10	.558	.024	.0295

*Hoffman's average f in roughened pipe.
†Computed from author's formula for bend loss.

Bends 1 and 2 seem to require unduly high friction coefficients and perhaps some other cause combined to affect the difference. Hoffman's technique for roughening his bends was not very satisfactory. He mixed sand with paint and filled his pipes with the mixture, then drained and dried. The same procedure was applied to the bends, though these were split and could have been opened for painting. He shows a hydraulic gradient for his smooth pipes which is very close to a straight line. The hydraulic gradient for his roughened pipes on the other hand was very irregular with a relative range from 3 to 6 as the slope of short sections for an average relative slope of 5. He had therefore a variation in his pipe section of nearly 100 per cent in roughness. Of his bends he says, "It was necessary, moreover, as previously mentioned, to insert equivalent straight-pipe sections of lengths equal respectively to the lengths of the bends, and then to determine the points on the pressure curve. The variations in the slope of the hydraulic grade line do not affect the determination of the bend coefficients since it can be assumed that the unknown causes of disturbance have the same effect with the bends inserted as with the straight substitute pipes so that their effect cancels out in the subtraction. This is predicated on the assumption that the roughness of the substituted straight pipes and the corresponding bends are identical. As to just how correct this assumption is, unfortunately cannot be stated."

Durability of Coating

It is to be regretted that Hoffman's roughening was not more uniform and permanent. Of it he says: "This piece of shell which was cut from a piece of pipe which was exposed to the water flowing through it for 6 weeks, showed traces of erosion clearly perceptible to the naked eye. The gradual erosion of paint and the consequent increase in roughness, offer an explanation for the slight yet noticeable increase in pressure losses. This indicates that homogenity and durability of the paint and sand coating are still far from ideal."

The apparently greater roughness of Hoffman's bends of sharp curvature when tested by the author's formula is perhaps due to erosion which would of course be greatest in his sharpest bends.

When Beij's results are treated in a similar fashion the anomolies disappear and his results are very consistent if the actual roughness was slightly greater than the assumed identical agreement with the straight pipe. The writer believes the formula as presented shows the pressure losses with considerable accuracy within the limits that have been outlined. Some modification may be required if further tests show that the rough bends proceeded and followed by "rough" tangents somewhat modify the "rough" readings for the present experiments were conducted with "rough" bends and "smooth" tangents. The two tests made with roughened tangents did not appreciably affect the results. The roughening was for about 2½ diameters up and downstream only and cannot be regarded as entirely conclusive.

Flow Pattern in Bends

It may well be that some small effect in the bend is produced by roughening the tangents to correspond, but the excellent agreement indicated by the application of the formula to both "rough" and "smooth" bends would seem to indicate otherwise. The smooth bends as tested have like-textured tangents yet they both adhere to the same law. The reason possibly lies in the fact that the flow pattern in the bend is so immediately and so radically altered from the flow pattern in the tangents that changes in the latter affect the former but little.

The flow pattern in bends will be somewhat more fully covered in an article which will follow shortly, though this will largely concern itself with bends of nonuniform cross-section. In reviewing the literature on the subject of curved flow, there comes to mind Mark Twain's comment on the weather, "Everyone talks about it but no one does anything about it." That witticism is perhaps no longer so apt since the advent of air conditioning. The next article will describe a method of, so to speak, "conditioning" the bend so as to "do" something about curved flow.

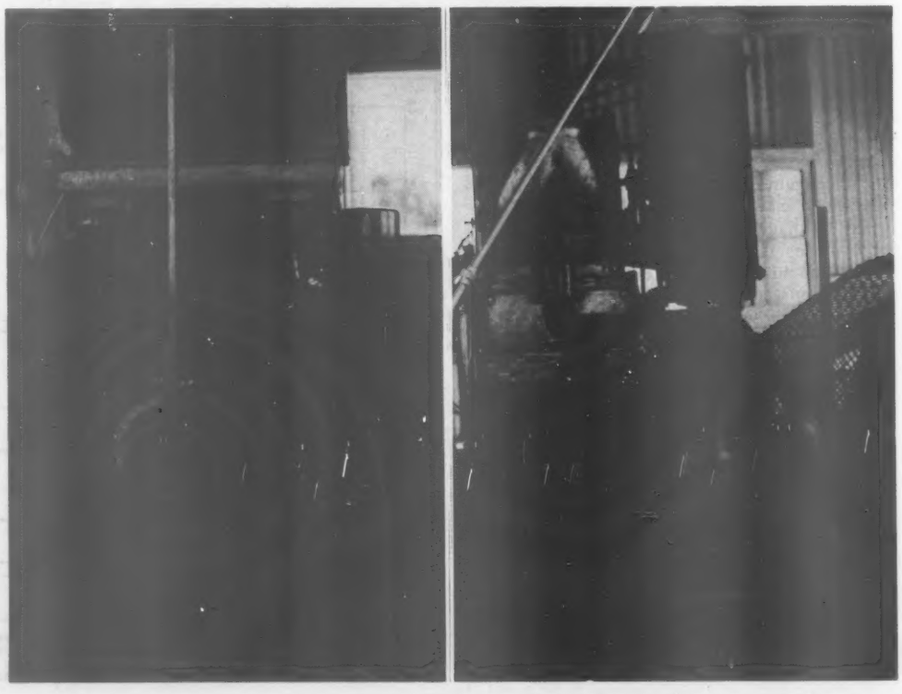
In conclusion the writer wishes to express his thanks to the hydraulicians of the Bureau of Standards. Mr. Eaton has been most kind in his encouragement. Dr. Keulegan performed invaluable service in correcting the mathematical work. K. Hilding Beij undertook the onerous work of editing the manuscript. His many valuable suggestions for arranging the presentation have been very greatly appreciated.

SAFETY — Flywheel Guard on Compressor Engine

ON one repressuring project, the gas for injection must be boosted on the lease as the line pressure coming from the gasoline plant is not sufficient to overcome the formation pressure. The lease has no electric lines, gas being used for illumination in the lease buildings.

The compressor is driven by a gas engine and the entire installation is covered by a small house. The pumper on the job has to visit the compressors about two times a tour to make sure that the engine is running properly, and that it is not being overloaded or underloaded.

To prevent any injury from occurring due to bumping into the engine at night, guards have been installed over the moving clutch and flywheel. The guards are made from old sucker rods which are used as a frame and heavy steel screens. The opening in the screens are small enough to keep a man's fingers from coming in contact with the moving machinery and at the same time they are large enough to allow free circulation of air around the clutch.



Technical Aspects of Carter Pressure Core Barrel

(Continued from Page 115)

when filtered under pressure. It is desirable to study this property of the mud under various pressures corresponding to all possible coring depths, and, at the same time, have an apparatus sufficiently portable to be useful in field studies. Accordingly, the Carter Oil Co., in cooperation with the Baroid Sales Co., designed the apparatus shown in Fig. 4.

This instrument is designated as a high-pressure wall-building tester. Hydrostatic pressures dealt with are rarely more than 1,000 lb. per sq. in. Differential pressure between the hydrostatic pressure of the mud and formation pressure is usually between 100 and 200 lb.

The pressure is supplied to the filtrature cell by a combination of hydraulic pressure and air pressure. Compressed nitrogen is preferable to compressed air but it is not readily obtainable.

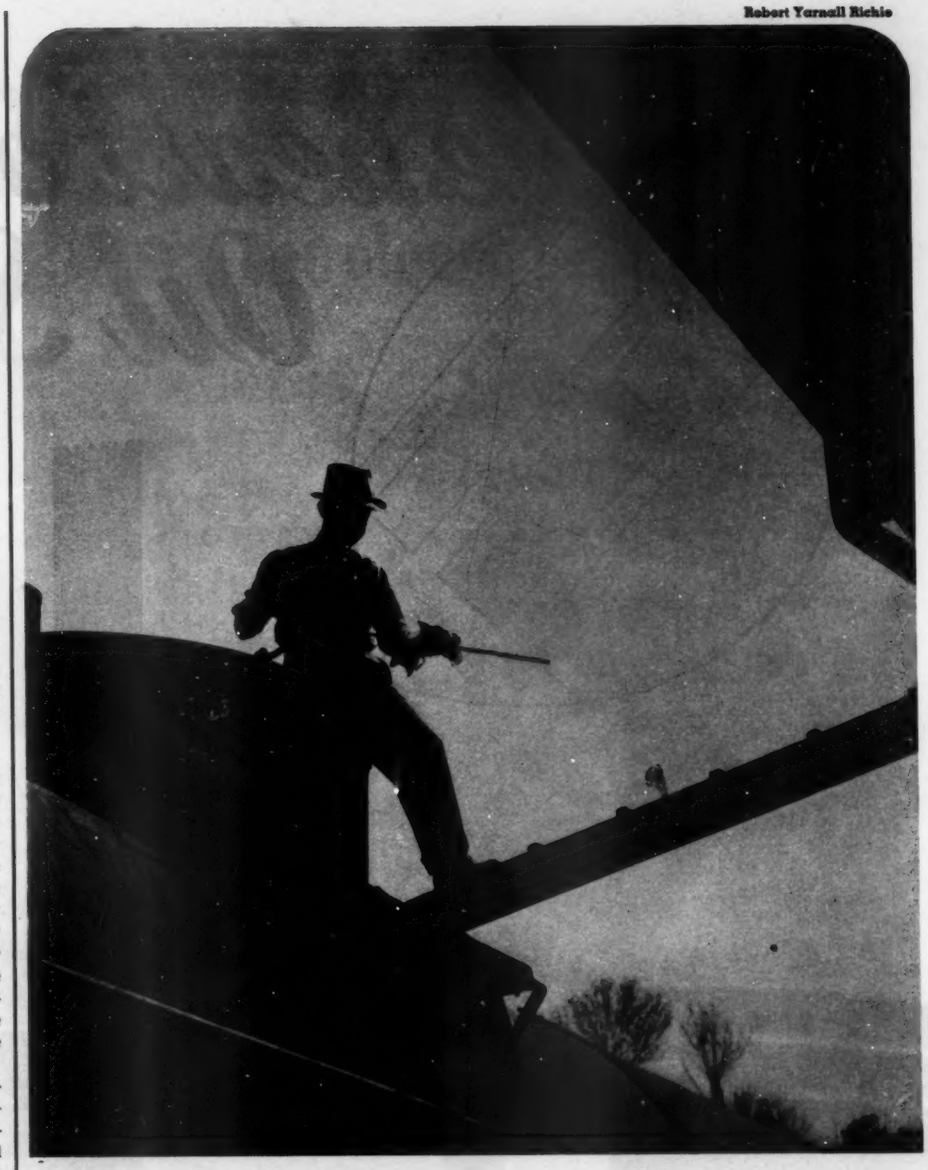
The high-pressure and high-temperature wall-building tester has been designed and developed to investigate the wall-building properties of drilling muds at elevated conditions of pressure and temperature in order to approximate the existing well conditions to which a mud is subjected. It is a rapid and simple means of measuring the relative filtration characteristics of drilling muds. It has been found that some muds that exhibit good wall-building properties at a pressure of 100 lb. per sq. in. and at atmospheric temperature as determined with a low-pressure tester will lose excessive water and deposit a filter cake of an objectionable thickness at a high pressure and high temperature. In other words, a mud may perform well enough for drilling at shallow depths but cause serious difficulties at greater depths. Consequently, in order to arrive at a more accurate evaluation of a mud in regard to its wall-building properties, filtration data should be based upon elevated conditions of temperature and pressure.

The apparatus was designed to withstand pressures up to 1,000 lb. per sq. in. with a temperature control up to 212° F. and yet afford simplicity and portability to enable its use for field testing as well as laboratory testing. In order to meet with the above specifications it was necessary to employ a small filter cell. Although the two cells are identically the same in principle, he area of the high-pressure cell is 3½ sq. in., whereas the area of the cell of the low-pressure or 100-lb. wall-building tester is 7.07 sq. in. With equal conditions of temperature and pressure the water loss as obtained with the high-pressure cell is approximately one-half of that obtained with the low-pressure cell while the cake thickness is the same.

The pressure filter cell consists of a cylinder with top and bottom caps or plates, screen rubber washer, and filter paper. The top cap contains a thermometer well which provides an immersion of 3 in. in the mud for the thermometer, a rubber washer on the inside to form a seal against the cylinder, and a washer on top which provides a seal against the pressure inlet. The bottom cap is threaded internally to receive the cylinder and threaded externally to receive the bath. The screen to be placed in the bottom of the cap allows the filtrate from the mud to collect and pass through the small opening in the center of the cap from which it passes through the filtrate tube located in the middle cross member and into the graduated cylinder below. The bottom part of the cap has a concave recess to produce a tight seal with the filtrate tube. The cell has a capacity of approximately 285 cc. For temperature control

(Continued on Page 156)

Robert Yarnall Richie



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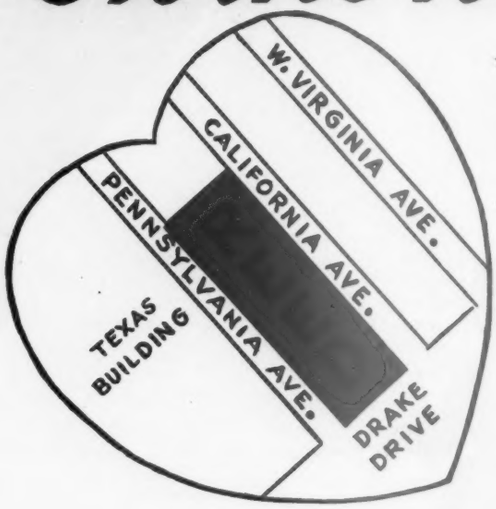

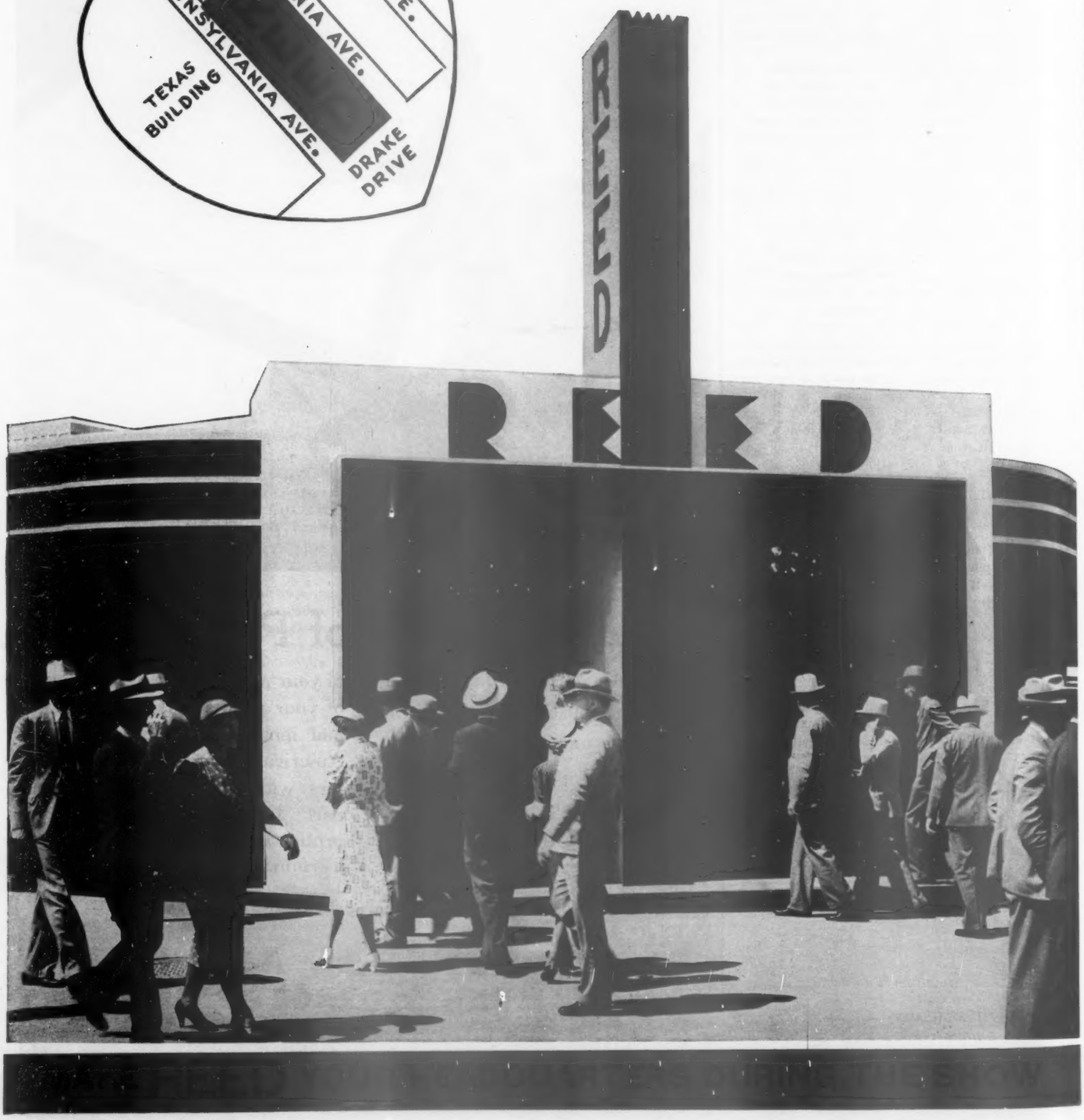

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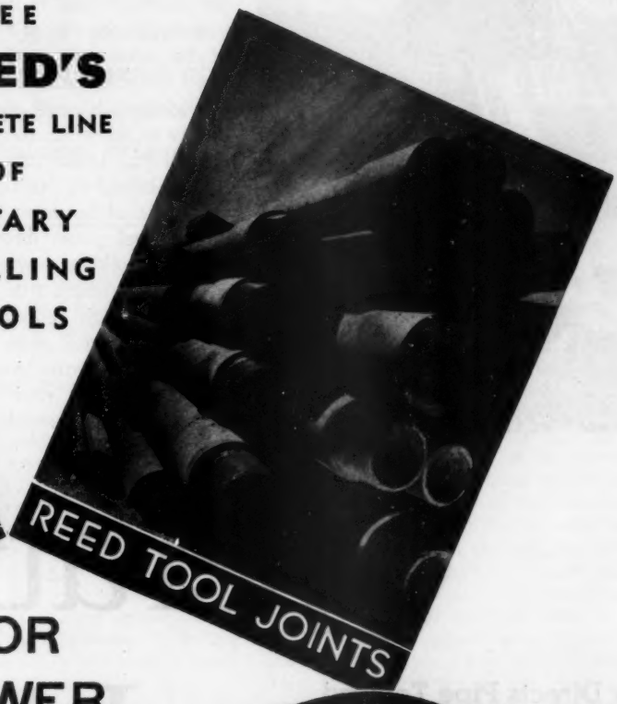

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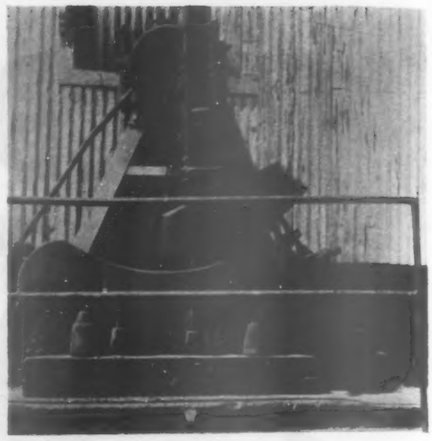
Operating Ideas

Treadle-Type Counterbalance

A three-well system, in which two units driven from the back crank balance each other when both are pumped, tends to impose excessive torque loads on the drive unit when either well on the crank drive is disconnected. By use of a treadle-type counterbalance, employing a 16-ft. 8-in. channel, pivoted at its outer end and toggled to the jack beam by a length of heavy chain, a means for quickly varying the counterbalance effect required is provided. An oil drum is welded to the channel close to the chain end, with an opening in the center to provide quick filling of the drum with gravel to provide the desired weighting. Screened gravel is used to provide weight, and also permit draining off of any water which may enter the drum during rainfall. Lightening the counterweight is accomplished by opening a slide in the center section of the drum, giving onto the channel. Gravel pours through this door when opened, working down the channel to form a pile from which it is easily recovered for reuse as weight material. By means of this door and a small store of gravel, weighting of the beam to any desired amount can be quickly effected, and almost as promptly changed when desired.



Blocked Counterweight Facilitates Change

With a second well pumped from the backside crank, desired conditions of balance are secured without the addition of rotating weight to the pumping system. But when the second well is down for servicing, use of counterbalances is required to compensate for the rod-string load. By blocking the counterweight just below the swing of the crank arm, it is possible to pick it up and place it on the arm with the bolts used to fasten it there. When the weight is set on floor, long bolts must be used, with possibility of thread damage and delay in making the change. To maintain the weight close to the crank swing, and at the same time effectively block the space between building and guard as the crank passes through the upper half of its cycle, the weight is supported on scrap 6-in. pipe couplings, into which are loosely screwed short nipples of the right length to hold the weight as desired.

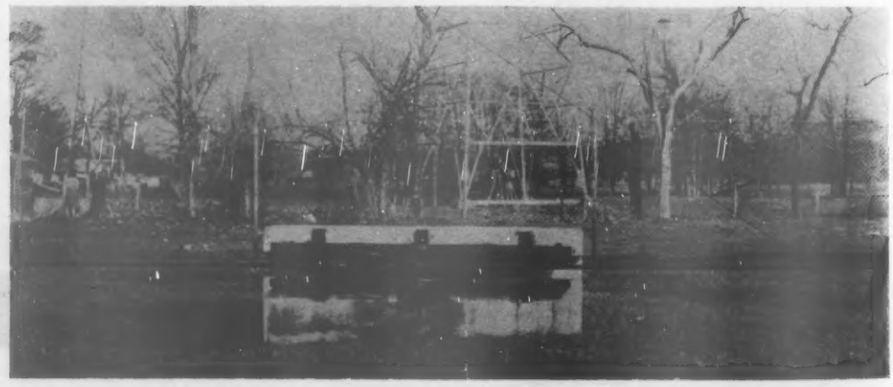
Roller Directs Pipe Toward Expansion Joint

Offsets or slight changes in direction in a pipe line which is subject to wide variations in temperature are apt to cause binding of the line in its supports, unless some provision is made for directing the travel of the pipe.

On one such line, in which a 45° change of direction was made by means of a bevel weld, travel toward the expansion joint was apt to result in cramping at the support until a roller, of pipe large enough to turn freely on the size used for posts, permitted the elongation to carry on in the direction desired. A similar roller on the lateral carrying the weight of the line prevented rubbing at this point, and made for smoother operation.

Roller Hold-Down Replaces Swing

Mounted against the side of a heavy block of concrete, a roller holddown serves in place of the more generally employed swing to give support to a rod-line drive for a slight change of direction. Substitution of rollers for the pin and bushing bearings of the swing provides more even distribution of wear over the entire surface of the parts engaging, and by substituting rotary for oscillatory motion, simplifies the problem of maintaining adequate lubrication. The use of the holddown for this particular service also contributes toward accident prevention, the swing being a favorite play spot for children, stealing "rides" on the moving arm, and risking involvement with the moving rod lines and couplings. With the holddown all motion save that of the bare rods is confined within the rails of the holddown, and no foothold for attempted rides is present.



Underground Storage of Gas

By C. U. DANIELS
Oklahoma Natural Gas Co., Tulsa, Okla.

A.G.A. —Paper presented before the annual convention of the Natural Gas Section, American Gas Association, Houston, Tex., May 6-10.

THE Oklahoma Natural Gas Co. decided to experiment with the underground storage of gas in depleted sands when the depletion of important reserves in the vicinity of the Tulsa market forced the transportation of gas over considerable distances in order that the demand be supplied at that point. It was apparent that such storage would improve the transmission-system load factor, provide a margin of safety for peak demands, reduce the waste of gas, and allow the company to obtain the advantage of dump prices on distress gas during the periods of low demand.

A study was made of several small depleted fields in order that one might be obtained which embodied the following advantages: proximity with respect to the Tulsa market, shallow depth, high porosity of sand, small acreage, absence of rapid edgewater encroachment, sufficient sand thickness, and isolation from other producing areas.

A small structure, involving about 300 acres, located about 25 miles from Tulsa, was finally chosen as a reservoir in order that an experiment of gas storage could be conducted. Four wells had been drilled in the structure since 1933, which had an original total open flow of 24,339 M.c.f. Two of these wells were dead by July of 1936, and production was discontinued on the remaining two near the end of the same year. The initial pressure was 560 lb. and the abandonment pressure was 83 lb. after a total of 510,000 M.c.f. had been produced from the sand. Production was found at approximately 1,750 ft. in this locality. The sand is approximately 45 ft. thick and the porosity is estimated to be 20 per cent.

In 1937 the leases involved were acquired, three of the wells were plugged, and a small compressor plant was erected for the purpose of injecting gas into the sand through the one remaining well. Storage of gas was begun in 1937, and, since that time, two cycles of injection and withdrawal have been completed. Injection for the third cycle will be made during the summer of 1940.

The first cycle of operation was begun in April 1937, and 77,189 M.c.f. of gas at 2 lb. pressure base were introduced to the sand by the time injection was stopped in September 1937. During the period from December of the same year to April 1938 withdrawals totaling 79,623 M.c.f. were made, or 2,434 M.c.f. more was withdrawn than had been injected. That withdrawal in excess of the volume injected during the first part of the cycle naturally came from the reserve contained in the structure prior to injection, and it could normally be expected that this withdrawal of original reserve would reduce the shut-in rock pressure below what it had been when operation was begun. However, in spite of the additional withdrawal, there was an increase in shut-in rock pressure of approximately 30 lb. between the beginning and the end of the first cycle. The average daily rate of withdrawal for the first cycle was 640 M.c.f., with a maximum daily rate of 1,200 M.c.f.

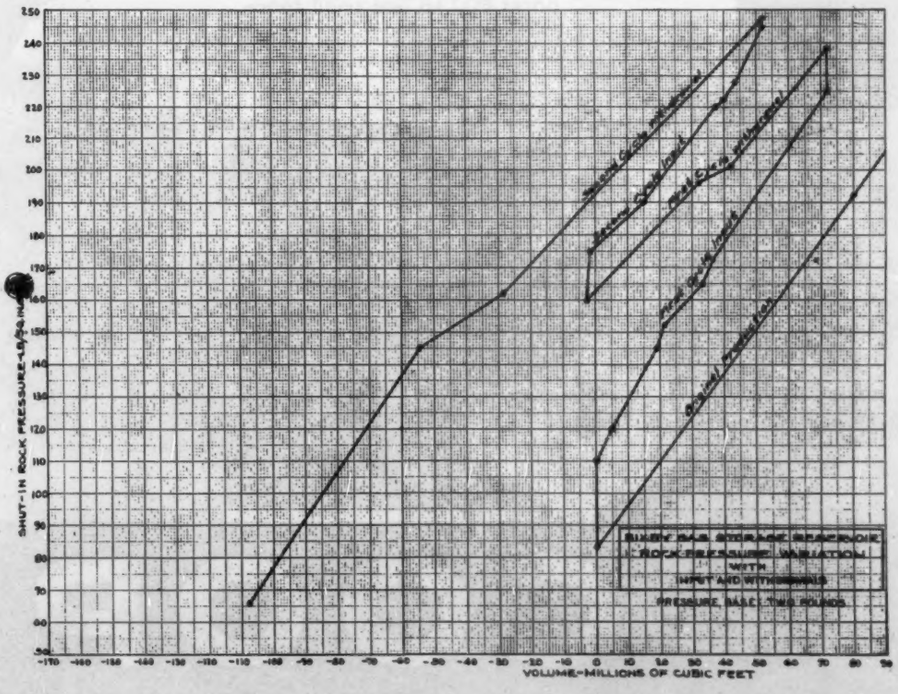
During the period between the first cycle withdrawal and the second cycle injection, the shut-in rock pressure in the reservoir built up to about 175 lb., or an increase of 15 lb. Only 51,965 M.c.f. were injected during this cycle to obtain a shut-in rock pressure of 245 lb. as against the first cycle injection of 77,189 M.c.f. to obtain a shut-in rock pressure of 225 lb. During the period from November 1938 to February 1940 withdrawals at 2 lb. pressure base totaling 160,158 M.c.f. were made, or 108,193 M.c.f. more was withdrawn than had been injected. The shut-in rock pressure at the end of the second cycle was 66 lb. The average daily rate of withdrawal for the second cycle was 394 M.c.f., with a maximum daily rate of 905 M.c.f.

Erratic Rock Pressures

The erratic rock pressures have raised a question as to whether the reservoir volume was being reduced by water encroachment or whether gas was being fed into the reservoir from some other source. Using the original production in Mc.f.-per-pound pressure drop and the abandonment pressure of 83 lb., the space within the storage reservoir was found to be approximately 13,100 M.c.f. Then, if the increasing pressure of the field was due to a water drive, and, if the field was not being repressured from gas outside of the structure, the reservoir space would be reduced to a figure which can be calculated by the relationship of pressure multiplied by the volume equals a constant. Thus, during the second cycle, the shut-in rock presusre with 192.5 lb. when the same amount of gas was supposedly in the reservoir as there was at the time when original production was discontinued, and when the shut-in pressure was 83 lb. It would follow then, that since it requires a greater pressure to store the same amount of gas, the storage space would be smaller. The calculated reserve volume of gas stored in this reduced space at the higher pressure would be 88,600 M.c.f. at atmospheric pressure base. However, 123,200 M.c.f., at atmospheric pressure base, have been withdrawn in excess of the volume injected, which is 34,600 M.c.f. more than the calculated reserve. The shut-in rock pressure at the end of this withdrawal period was 66 lb., which would indicate a reserve still remaining of 34,400 M.c.f. at atmospheric pressure base. It can thus be seen that there would be a volume withdrawn and a volume still in reserve, which is in excess of the reserve first calculated by an amount equal to 69,000 M.c.f. This discrepancy has led to the conclusion that rock pressure is not being built up by a water drive, but that gas is slowly being fed to the reservoir structure from some other source. This conclusion is substantiated by inspection of the nature of the sand and the structure. The sand is known as the Dutcher and is a sedimentary deposit covering a great part of eastern Oklahoma. It is entirely possible that several minor accumulations adjacent to the reservoir structure are the source of this added volume of gas. Another possibility is that gas is slowly being fed to the well bore from shaiy lenses far down in the reservoir sand.

The gas in reserve at the beginning of the project was purchased at 6 cents and injected gas has been purchased on a dump-load basis at 3 cents; thus, during the first cycle the average cost of gas per thousand cubic feet in the reservoir was slightly over 4 cents. All other costs of the project, including operation, maintenance, depreciation, interest and taxes, amounted to slightly under 5 cents per thousand cubic feet during this cycle. The total cost then was almost 9 cents per thousand cubic feet. However, during the second cycle, these same costs were approximately 2 cents, 3 cents, and slightly under 5 cents. This variation of unit costs is, of course, a result of

(Continued on Page 140)



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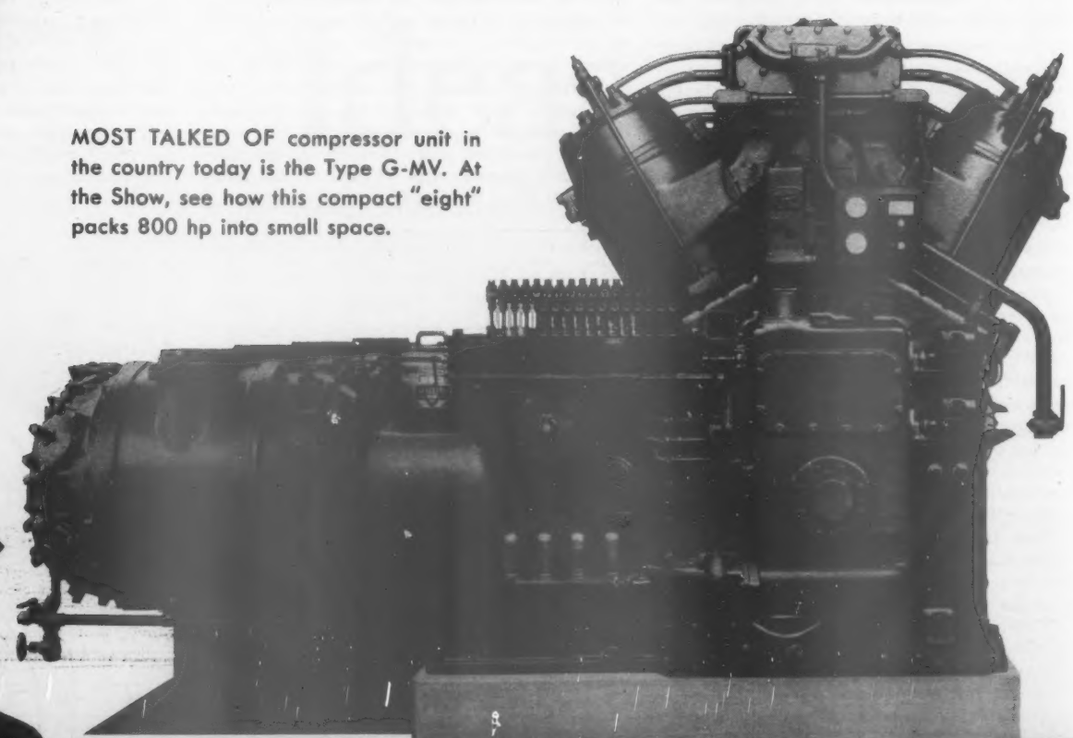

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"I Always Had the Idea V-belt Drives Were Pretty Much Alike! But That Was Before I Discovered Texrope V-belt Drives . . . the Drives that Cut Transmission Costs!"

"I NEARLY lost a hole due to transmission failure one day last fall. For three hours it was nip and tuck . . . even today I get a cold sweat thinking about it.

"I never realized the importance of using the right kind of transmission equipment. To me, V-belt drives had all looked pretty much alike . . .

"But that near-tragedy taught me a lesson. It was then I discovered Allis-Chalmers Texrope V-belt Drives.

"And what a difference!

"Yes, I know now I was dead wrong . . . but not any more. I'm taking no more chances of losing a hole. It's Texrope Drives for me from now on . . . and I honestly feel my transmission worries are over!"

See Your Supply Company and Specify Texrope!

Your transmission worries will be over too — if you switch to Texrope Drives! For with these modern drives you get "matched sets" that pull together, giving you greatest protection against belts breaking, against excessive wear.

Also, their wedge design and cool-running construction allows them to operate with greater efficiency. Slipping is eliminated. Shocks and vibrations are absorbed. They are easier to install . . . cheaper to maintain . . . safer on the job!

These points are important features that you should know. They are points that give Allis-Chalmers Texrope Drives superiority in performance, long life, and low maintenance. They are the reasons why they have skyrocketed to number one position as the most popular way to transmit power. Read these features in the center panel carefully!

For complete facts, see your supply company . . . and specify Texrope Drives. Or write Texrope Division, Allis-Chalmers, Milwaukee, Wisconsin.

A 1240

Belts by Goodrich

made with a new, special, cool-running rubber compound that actually increases belt life 100 to 200% over belts of only a few years ago.

Matched into "Sets" for PULLING Together!
Now, with a newly developed measuring machine, every Texrope belt is tested in a grooved sheave running under normal operating tension . . . and the exact length to 1/100 of an inch is registered on a finely calibrated meter. This means that "sets" of Texrope belts *pull together* . . . wear evenly . . . give longer life.

Backed by Allis-Chalmers 90 Years of Engineering!
Multiple V-belts were orginated and developed by Allis-Chalmers engineers. This same huge engineering staff is prepared at all times to help you on your drive problems . . . to make it easier for you to save money and get better transmission efficiencies.

A Size to Fit Your Needs!
Available in five standard cross-section measurements, and for drives from fractional to 2,000 hp, there's a Texrope Drive that exactly suits your requirements . . . saves you money!

★ Adequate Stocks Carried Throughout U. S. A.
Get Texrope Drives and replacements instantly from Allis-Chalmers warehouses and supply company stocks in all main oil centers.

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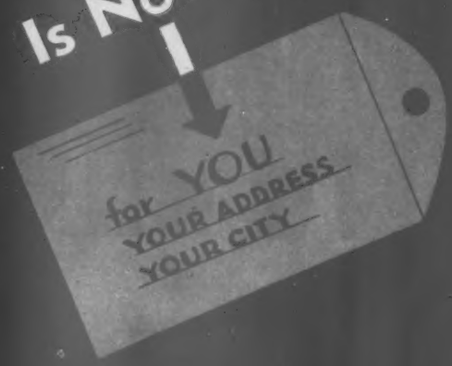


ALLOY AND CARBON STEELS: SEAMLESS STEEL PLATE MADE CYLINDERS, PIPE COUPLINGS, PUMP LINERS, LIQUEFIERS AND BULL PLUGS; HOLLOW AND DROP FORGINGS; MUNITIONS; DROP FORGED STEEL PIPE FLANGES, COILS AND BENDS

Underground Storage Of Gas

(Continued from Page 135)

the excess of withdrawal over reserve and injected volumes. Estimated future storage and delivery cost show that unit costs decrease as injected volumes are increased, and that the unit cost is barely under 6 cents when 100,000 M.c.f. at 2 lb. pressure base are injected and withdrawn annually. Thus, for the area in which the reservoir is located, it will be necessary to store 100,000 M.c.f. or more each year for economical operation.

It is believed that this experiment has been of benefit in that all anticipated advantages were derived to a certain extent. At the present time, several similar projects are under consideration and will be put into operation as soon as the details of acquisition are completed.

Appendix

Reservoir space.—Withdrawal per pound drop in pressure over the period of original production of the field = 1,069 M.c.f. per lb.

The total volume of gas remaining when production was discontinued at 83 lb. was:
1,069 × (83—0) = 88,727 M.c.f. at 14.4 lb. Absolute
The reservoir space would then be:

$$88{,}727 \times \frac{14.4}{83 + 14.4} = 13{,}118 \text{ M.c.f.}$$

which for our purpose will be called 13,100 M.c.f. Then

$$PV = \text{Constant, or } P_1V_1 = P_2V_2$$

and, on the chart, the pressure at zero volume during the second cycle was 192.5 lb. gage so, if water drive were present, the reservoir space, V_2, would have been reduced to:

$$(83 + 14.4)\ 13{,}100 = (192.5 + 144.4)\ V_2$$
$$V_2 = 6{,}167 \text{ M.c.f.}$$

With this reservoir space then, the volume of gas, R_o, based on zero pounds absolute abandonment pressure, which is in reserve at 192.5 lb. absolute pressure, would be:

$$R_o = 6{,}167 \times \frac{(192.5+14.4)}{14.4} = 88{,}600 \text{ M.c.f.}$$

However, as of February 15, 1940, 123,200 M.c.f. at atmospheric pressure base had been withdrawn, which is 34,600 M.c.f. more than the reserve at zero pounds absolute. The pressure at this time was 66 lb. gage, which indicates a reserve, R_o', at zero pounds abandonment pressure of:

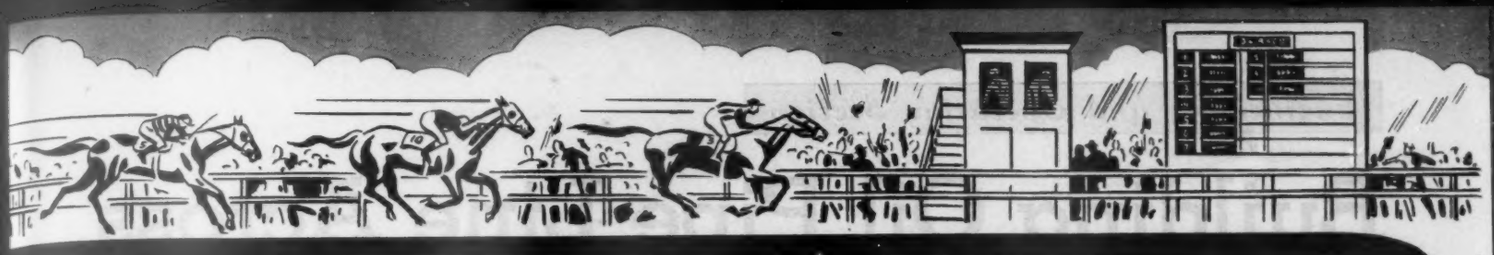
$$R_o' = 6{,}167 \times \frac{(66 + 14.4)}{14.4} = 34{,}400$$

Thus:

Reserve based on water drive when zero volume was reached on second withdrawal		88,600 M.c.f.
Deliveries at atmospheric pressure to February 15, 1940	123,200 M.c.f.	
Remaining reserve as of February 15, 1940	34,400 M.c.f.	
		157,600 M.c.f.
Apparent volume in excess of estimated reserve		69,000 M.c.f.

Refinery Employes Show Greater Output Per Man-Hour

By multiplying the number of refinery employes by the hours worked and dividing the answer into the number of barrels of crude-oil processed through the refineries the answer serves as the basis for comparison from year to year. According to the W.P.A. statistical report on oil refining, this number has consistently risen since 1919. The answer shows the number of barrels of crude processed per man-hour and for 1937, the latest data available, is shown as 7.6. For the previous year it was 7.2 and for 1930 was 4.4. In 1919 the comparable figure was 2.4 bbl. per man-hour.



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you how the latest developments in casing and tubing manufacturing methods give you a product that has no equal—and the reasons why.

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And just in case you are not fortunate enough to visit the show this year—we suggest that you permit us to send you our new folder giving collapse and joint strength data on Republic Electric Weld Casing. Copy sent on request.

These are some of the Republic Steel Products which you can see and obtain first hand information on at our exhibit—

Alloy Steels for every type of equipment
Upson Quality Headed and Threaded Products
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Steel, Copper-Bearing Steel and Rust-Resisting Toncan* Iron Pipe, Strip, Sheets, Plates, Bars
Union Cold Finished Steel Bars and Shafting
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Truscon Standard Steel Buildings
Toncan Culverts for subdrainage
Republic Electric Weld Line Pipe—*We can ship it faster than you can lay it.*

*Reg. U. S. Pat. Off.

CORPORATION

Building Oil Pipe Line Across Continental Divide

By WILLIAM G. HELTZEL

Wasatch Mountains west of Morgan City, Utah. Pipe line was laid near the base of these mountains

This is the first of three installments of an article describing the building of the Utah Oil Refining Co. line from Fort Laramie, Wyo., to a refinery near Salt Lake City, Utah. The paper was presented before the Petroleum Fluid Metering Conference, sponsored by Petroleum Division, American Society of Mechanical Engineers, April 11-12, at Norman, Okla.

THIS line, the property of the Utah Oil Refining Co., was designed and constructed under contract for the Utah company by the organization of the Stanolind Pipe Line Co.

The Route

Beginning at a pumping station near Fort Laramie, Wyo., and ending at a refinery near Salt Lake City, Utah, this line is 442 miles in length. In this distance, three relay pumping stations are located approximately 96 to 141 miles apart. It is constructed of 418 miles of 8-in. and 24 miles of 6-in. pipe. Starting at an elevation of 4,224 ft. above sea level, the line rises 3,000 ft. within the first 50 miles to reach a lofty plateau, the Continental Divide, which it traverses (at elevations always above 6,000 ft.) for 325 miles on a southwesterly course across southern Wyoming. After leaving the plateau, the line rises and crosses first the Bear River Divide at 7,660 ft. in Wyoming, near the state boundary, and then the Wasatch Mountains in Utah at 7,440 ft. In the next 55 miles of the remaining 68 miles, the line follows a difficult course, descends 3,200 ft. and enters the Salt Lake Valley at practically the same elevation from which it started at Fort Laramie.

From a location near the old historic military post (Fort Laramie) on the banks of the Laramie River, the line starts and strikes directly toward an almost insurmountable barrier—the Laramie Range, with its craggy peaks and eastern slope looming blue and hazy on the horizon 50 miles away. In the first 30 miles it passes through foothills characterized at first by open, undulating, treeless countryside, then a terrain broken by sand hills and eroded areas, and a final stretch of glacial deposits before reaching the foot of the mountain. In the next 8 miles, representing the very toe of the mountain, the line rises gradually to 5,000 ft. and reaches the east approach of a pass in the range through which an unusual right-of-way had been carefully selected. By following a steep, rough and meandering course along the mountain sides, the line rises 2,360 ft. within the next 12 miles, reaches the peak of its immediate climb at 7,260 ft. and crosses the range 15 miles south of Laramie Peak, one of the noted natural landmarks of the old Oregon Trail. Now a surprising change occurs—the vista of a rolling terrain on a seemingly boundless plateau lies just ahead. Unlike its long steep ascent on the eastern flank, the line leaves the crest, descends 250 ft. over 4 miles of gradual rolling terrain on the western slope that merges quickly with the plateau. Now with the country wide open and no important obstacles in sight, the line following its course traverses 42 miles of arid, barren and desolate country, and arrives at Medicine Bow (at an elevation of 6,683 ft.) to complete a stretch of 95.6 miles between the initial and the first relay pumping station.

For the next 260 miles, the line, always above 6,000 ft., follows a course generally parallel with the route of the Union Pacific Railroad and the Lincoln Highway. In this distance the topography, typical of a wasting mountainous plateau, is characterized by a succession of rises and falls. Except for the 1,600-ft. rise from Green River to Bear River Divide on the west end of this section, the variation of the elevations between the major crests and troughs ranges from 400 to 800 ft. From east to west the lowest elevations in this distance are represented by 6,480 ft. at the North Platte River, 6,060 ft. at Green River, and 6,120 ft. at Blacks Fork River. The line reaches its highest points in crossing the Medicine Bow Mountains at 7,330 ft., the axis of the Continental Divide at 7,140 ft., and in crossing Bear River Divide at an elevation of 7,660 ft., the highest point on the line. In constructing the line, the disadvantages of the rough terrain were materially offset by the

Looking west along pipe line right-of-way toward east entrance of West Weber River Canyon. Line has been laid on skids ready for lowering into the ditch

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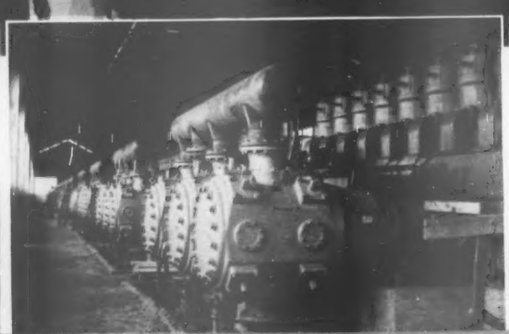

8-Cyl. "Angles", Booster Station under construction, El Paso Natural Gas Co.

Rear View 800 Horse-

UNIT AT THE OIL SHOW

New CLARK
8-Cylinder "Angle"
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More horsepower per pound of weight.

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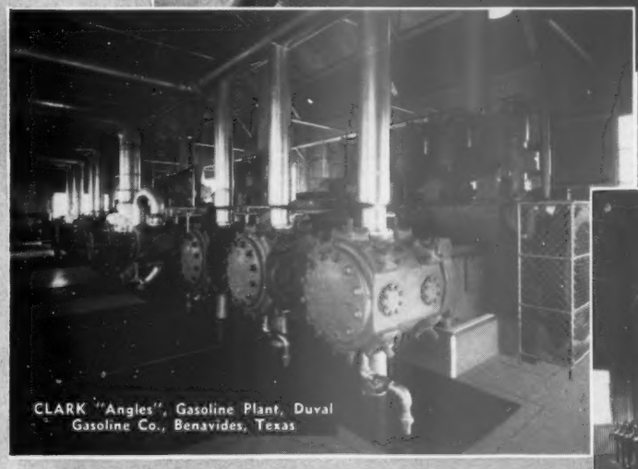
View
Horse-

of Battery of 8-Cylinder
power CLARK "Angles"

CLARK

Five 800 H.P. CLARK "Angles", Coastal Recycling Co., Banquete, Texas



CLARK "Angles", Gasoline Plant, Duval Gasoline Co., Benavides, Texas

Four 600 H.P. CLARK "Angles", Recycling Plant, Corpus Christi Corp., Stratton, Texas

2,800 H.P. of CLARK "Angles", Repressuring Plant, Tepetate, La.

advantages of an open and barren country, and to some extent the ownership of the land, either publicly or privately, in large tracts. Generally the right-of-way over this stretch was good and only a few obstacles hindered the progress of construction. After reaching its highest elevation, in crossing Bear River Divide 14 miles east of the Utah-Wyoming boundary, the line descends approximately 1,000 ft., crossing Bear River within 9 miles, and enters Utah, ascending immediately into the Wasatch Mountains, which it passes over at an elevation of 7,420 ft.

In the final stretch of 67 miles, the 3,200-ft. descent from the crossing in the Wasatch Mountains to the terminal at Salt Lake City occurs principally in the next 40 miles over a route through mountain canyons. In this section, the right-of-way is one of the most unusual and most difficult over which a crude-oil pipe line has been laid. Leaving its crossing in the Wasatch Mountains and following a downward course where sufficient room could be found for a narrow right-of-way, the line meanders along the base of steep canyon walls, over shelves cut out of sloping hills, and finally without any other room, follows for a short distance down the bed of Lost Creek itself. In this manner it weaves its way through Trail and Lost Creek canyons and descends 2,200 ft. on a steep but even grade in a distance of 20 miles. Leaving Lost Creek Canyon, the route enters the Weber River Canyon at Devil's Slide and for the next 6 miles follows a course wherever sufficient room could be found within the few hundred feet between the sheer canyon walls. With the Weber River following the base of the south canyon wall and occasionally changing its course to a midway position and the Union Pacific Railroad and the Lincoln Highway crowding each other and alternating their respective positions along the north canyon wall, the pipe-line route crosses and recrosses the river, highway and railroad, seeking just enough space for an 8-in. pipe line. Crowded out of one position by highway, railroad or physical barriers, the line shifts its course and edges its way through. For a short distance it makes its way along a narrow ledge, between river and canyon wall. Now it follows along the river bank in a shoulder of the highway built at the base of the mountain side. Here it crosses over a protruding mountain ledge paralleling the railroad that passes through a tunnel. Thus by shifting from one position to another, the line makes its way over 6 miles of a most difficult route and emerges from the narrow canyon. For the next 3 miles the canyon widens to form a narrow valley with irrigated fields along the gently sloping hillsides. After traversing this stretch of comparatively easy going, the line enters the Morgan City Valley and follows a rather easy course for the next 9 miles, meandering along the foot of the mountain range or traversing the sloping cultivated hillsides. Leaving this valley, the line enters a narrow canyon again, through which conditions are worse than those experienced in the stretch from Devil's Slide to Morgan City. The canyon is not only narrower, but in addition to the railroad, the highway and the river, a concrete irrigation canal has been crowded into the canyon by cutting out a shelf in the south canyon wall. Following this most difficult part of the route for 5 miles, the line finally passes out of the canyon at Uinta and turns southward on a 24-mile course through the Salt Lake Valley.

As a summary, it is noteworthy that the line starts and ends at practically the same elevation, approximately 4,200 ft. above sea level. All of the 442 miles of the line, except approximately 41 miles on the east end and 57 miles on the west end, lie at elevation above 6,000 ft. Sixty-eight miles lie between elevations of 7,000 and 7,660 ft. The steepest rise is 2,000 ft. in 8 miles on the east slope of the Laramie Range and the steepest descent is 1,420 ft. in the first 7 miles after crossing the Wasatch Mountains. The highest elevation is reached at 7,660 ft. in crossing the Bear River Divide. The important elevations along the line are shown in the following tabulation:

Location—	Distance from starting point (in miles)	Elevation in ft. above sea level
Fort Laramie station	..	4,224
High point in Laramie Range	50	7,260
Medicine Bow station	95.69	6,683
Medicine Bow Mountains	112.00	7,320
Axis of Continental Divide	182.00	7,140
Wamsutter station	191.61	6,815
Granger station	301.35	6,303
Bear River Divide	350.00	7,660
Wasatch Mountains	375.00	7,420
Salt Lake City terminal	442.32	4,220

The Survey

On account of limited time, and having no established routes through the Laramie Range and the Wasatch Mountains, a reconnaissance survey over the possible routes was made from the air by the chief engineer and his assistant. Ten days later, members of the engineering and operating departments of the Stanolind Pipe Line Co. and representatives of three pipe-line contracting firms drove over as much of the proposed pipe-line routes as was accessible at that time. Within a week, an agreement concerning the route was reached and the engineering department was authorized to make a contract for an aerial survey of the entire length of the line. Aerial photographs, taken from an elevation of 14,000 ft. above the ground level, showed the topography for a mile and one-half on each side of the route. The first photographs, taken through the mountainous country, enabled the engineering department to decide on the route through these stretches. Crews of civil engineers, aided by the aerial photographs, made the final selection of the route on the ground and marked its course. On account of natural barriers and limited space for right-of-way in the Weber River Canyon, painstaking efforts were required by the crew which selected the route of the line through this section. The aerial photography, used in connection with the construction of this line, has proved valuable not only in making the ground survey, but also as a reference in operating the line. In addition to the general aerial maps, the topography along the line is shown on a large number of stereopticon plates (7½ by 9 in.). Through the use of these plates and a stereoscope, the third dimensions of the topography can be examined. Such information is valuable to the staff responsible for the operation and maintenance of the line.

The Design

The design of a pipe line is essentially a hydraulic and mechanical problem. It involves primarily: (*a*) Choosing the size and type of pipe; (*b*) determining the number of relay pumping stations, their locations and the distances between them; (*c*) selecting the power and pumping equipment, along with their auxiliaries; and (*d*) laying out the station lines and manifold piping system.

Ordinarily pipe lines, designed according to conventional practices, operate at pressures below 800 lb. By necessity, this line is designed for much higher than usual pumping pressures. The first station, Fort Laramie, is designed for a maximum pumping pressure of 1,800 lb. The three relay pumping stations are planned for operating pressures of 1,200 lb. The design was based on such pressures for the purpose of meeting not only present conditions, but also for unknown factors and requirements in the future. Considering only the present conditions, the necessity of designing for these higher pressures should be explained in more detail. The reasons are found in economic considerations and physical factors involved in the operation of the line.

Looking east along pipe line right-of-way from top of mountain north of Morgan City, Utah. Note the very crooked pipe line meandering around the base of the mountains

From the economic viewpoint, 442 miles of line, all of which is 8-in. except for the 24 miles of 6-in. in the Salt Lake Valley, involves an inordinately large investment in pipe for transporting only 6,000 to 8,000 bbl. of oil daily. Consequently, the investment in relay pumping stations and the attendant-operating expenses is held to a minimum by spacing the pumping stations farther apart and operating at higher pressure. On first thought, a 6-in. instead of an 8-in. line appears more suitable for the present capacity. However, an analysis will show that the investment in additional relay stations required on the 6-in. line would offset the difference in investment between the 8-in. and 6-in. pipe. Assuming that individual estimates might disagree in showing a favorable balance on the side of the 6-in. line, the difference would be wiped out in a few years by the difference in operating expenses. Also, a 6-in. line would have lacked the necessary flexibility for meeting future requirements. And finally, with so many unknown physical factors involved in the operations, a 6-in.

(Continued on Page 150)

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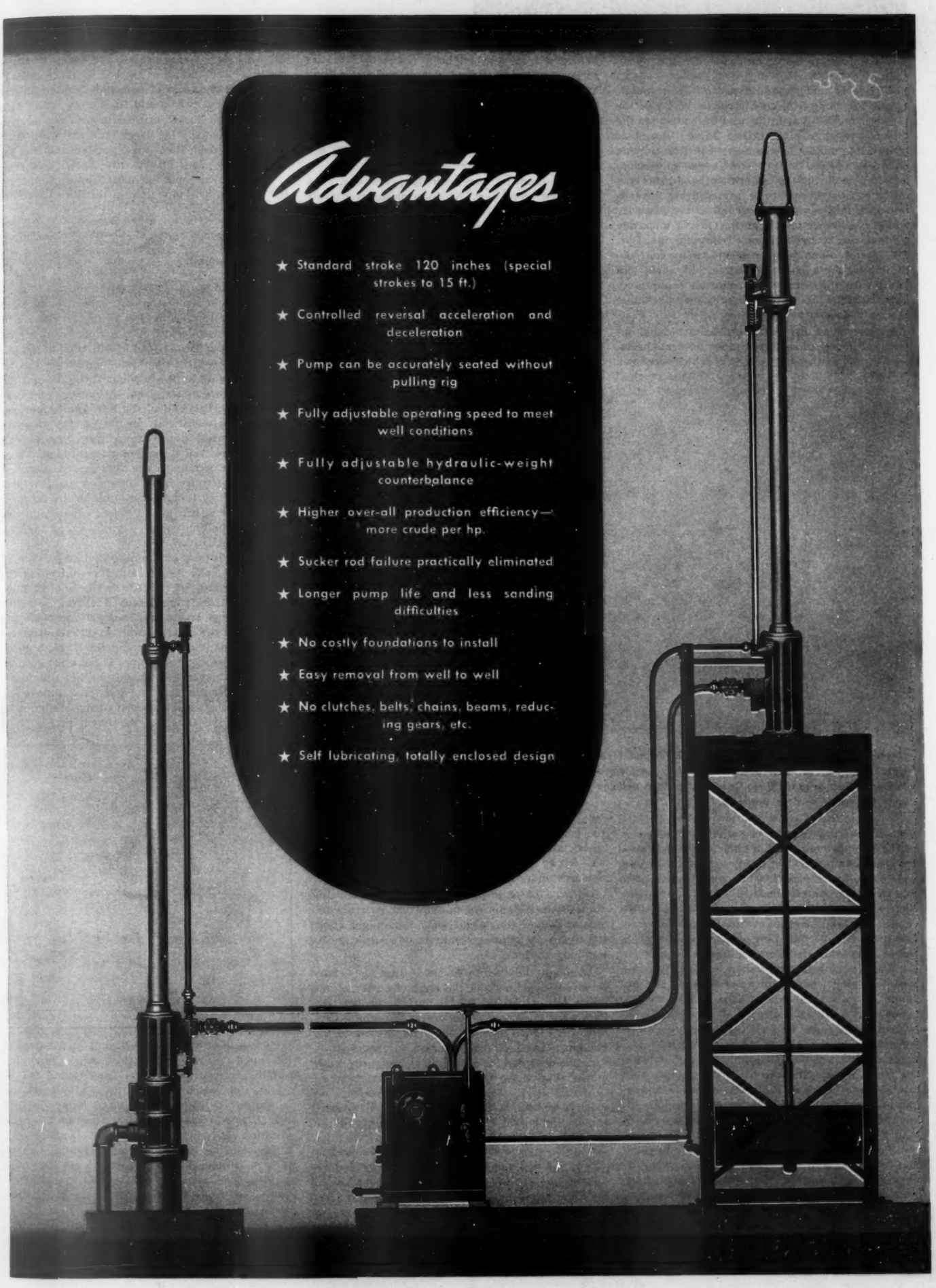
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line could not be relied on for continuous operation.

With this understanding as to the economic reason for using 8-in. pipe, a consideration of the physical factors that influenced designing for the higher pressures is in order. First, viscous or stream line motion is experienced in transporting only 6,000 to 8,000 bbl. of viscous crude oil through an 8-in. line during the colder months. In this condition of flow, the pressure, representing the friction loss, is directly proportional to the viscosity which was known to be high for most of the crude oil that was to be transported through this line. This factor alone was sufficient to warrant designing for these higher pressures; but when combined with the factor of long-distance pumping, discussed later, the use of these higher pressures became a necessity.

Another factor involving both economic and operating considerations: from topographical sheets, used in lieu of the survey figures which were not yet available, approximate elevations on the course of the line through the Laramie Range indicated that the column of oil in the first 50 miles of line would result in at least 1,000 lb. and possibly 1,200 lb. effective hydraulic head at Fort Laramie station. On the basis of conventional practice this condition would require within this distance an intermediate relay pumping station, possibly at a rather inaccessible location high up on the eastern slope of the range. Rather than build such a station, involving an investment of $100,000 and an annual operating expense of $25,000, the line between Fort Laramie station and the top of the Laramie Range, as well as the pumping equipment and the manifold piping system at Fort Laramie station was designed and selected for safe operations at capacities up to 5,000 bbl. daily and a pressure of 1,800 lb. Connections made in the line at a proper location on the eastern slope of the Laramie Rrange provided the necessary assurance that a portable pumping unit could be installed quickly for relay service, if required by excessive pumping pressures at Fort Laramie. It should be explained in this connection also that through the winter months a crude oil of low viscosity is mixed with the more viscous oil for the purpose of keeping the pumping pressures within the limits for which the facilities were designed.

A similar condition existed to a lesser degree at the last relay pumping station tentatively located before the survey had been completed. It was estimated that in pumping over the Bear River Divide and the Wasatch Mountains, a hydraulic head or "hill pressure" amounting to as much as 600 lb., would be experienced at this station. Consequently, the outgoing discharge line was designed for operating at a capacity of 10,000 bbl. per day and 1,200 lb. pressure.

The unknowns were equally persuasive. The conditions were new. No information was available as to how low the temperature of the oil might go in pumping over elevations of 6,000 to 7,000 ft. during the winter months. Even on the basis of estimating the low temperatures at 30° F. the high viscosity of the crude at this temperature could not be determined reliably by the instruments customarily used for this purpose. Without any similar experience, and having in mind that the slower the movement of viscous crude oil through a pipe line at low temperatures, the greater the tendency for films of paraffin to accumulate on the walls of the pipe which sometimes causes a restriction in the line, considerable uncertainty was felt as to how this slow-moving stream might perform under these new conditions.

General view from a mountain of Weber River and Weber Canyon, Morgan County, Utah. At the left is the Lincoln Highway (U. S. 30 South). Paralleling the highway is the double-track system of the Union Pacific Railroad. Next come the Uinta Gas Line, the Utah Refining pipe line right-of-way and the Weber River. The view is looking east, or upstream

On account of insufficient advance time being allowed, for the surveys, no information was available as to how the "peak" elevations might affect the hydraulic gradients and the pressures at the pumping stations.

Although the factors of the future, especially required capacities and the characteristics of the crude oils which might be moved through the line, were important considerations, nothing definite was known about them. The answer to the known, as well as the unknown factors, was an 8-in. line designed for operating at pressures much higher than those used as conventional practice in the industry. Therefore, according to their respective conditions discussed above, the facilities and equipment at Fort Laramie station and the outgoing line were designed for a capacity of 5,000 bbl. daily at 1,800 lb. pressure, and the remaining part of the line and the other three relay stations were designed for a capacity of 10,000 bbl. at 1,200 lb. One's interest now turns to the type of equipment and facilities used for meeting these conditions.

The Pipe Line

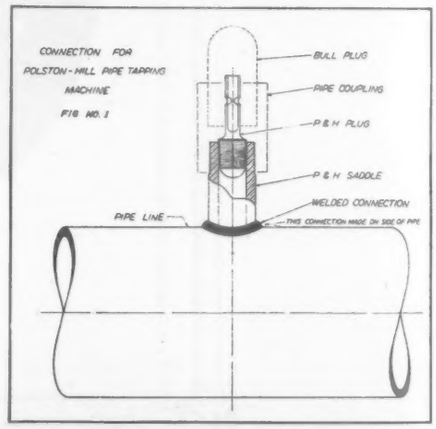
Seamless pipe joined together by electrically welded butt joints is used in the entire length of the line. The main line consists of 417.78 miles of 8-in. and 24.30 miles of 6-in. pipe. In addition to the main line, two lateral lines were built: 27.37 miles of 4-in. line from Opal to Granger for handling oil from the La Barge field and 14.88 miles of 6-in. laid from Rock River to Medicine Bow for transporting crude oil from the Rock Creek field.

The physical and chemical specifications for the 6-in. and 8-in. pipe used in this line are shown below:

Physicals—		Chemicals—	
Tensile, lb.	70,000	Carbon	.241
Yield, lb.	50,000	Phosphorus	.0108
Elongation, per cent	35	Sulfur	.0259
		Manganese	.522

On account of the 3,200-ft. fall in the last 67 miles of line, the equivalent pressure head is so much greater than the friction loss in this length of 8-in. line that it was decided to use a part of this pressure by laying 6-in. instead of 8-in. pipe in the last 24.30 miles after the line leaves the Weber Canyon and turns south to pass through the Salt Lake Valley. A greater quantity of 6-in. pipe would have been laid on this end of the line for the purpose of using an additional amount of this pressure head were it not for the limited space, the difficult route and restricted right-of-way through Weber Canyon. On account of the high construction cost and the difficulty of building a parallel line through this section at some time in the future it was decided to provide sufficient capacity in this section of the line now by laying 8-in. all the way through this canyon.

For the purpose of draining certain sections of the line to make repairs and for controlling the drainage in case of failures in the line, 23 high-pressure valves were installed at the principal river crossings and other strategic locations along the route of the line. On account of long distances between pumping stations and the large drainage areas, the use of these valves is not only good insurance against large losses of oil, but provides a means of draining certain and only limited sections of a long line. A special fitting, designed by Stanolind Pipe Line Co., as shown in Fig. 1, is



welded to the line on both sides of each valve, so that quick and easy connections can be made for draining a section of line by transferring the oil around a closed valve. This fitting eliminates the undesirable feature of leaving a valve or stop cock attached to the drainage connection after the operation has been completed.

Provision has been made for installing scraper traps at suitable locations between the pumping stations. The necessary valves and flanges have been placed in the line to facilitate the installation of the remaining part of the scraper trap piping at a later date. Ordinarily pumping stations are located 40 to 50 miles apart and intermediate scraper traps are not required, when a line of the

(Continued on Page 156)

A. G. A. ABSTRACTS

Papers presented before annual meeting Natural Gas Section, American Gas Association, at Houston, Tex., May 6-10.

●

Flow of Natural Gas in Rough Pipes

RAYMOND RANSOM (Panhandle Eastern Pipe Line Co., New York).

THE interior walls of present-day commercial gas-line pipe are both rough and wavy. Sometimes the degree of roughness is further increased due to corrosion or incrustation before as well as during use. Consequently, in order to better understand the design and operation of pipe lines we should investigate the flow of natural gas in these rough pipes. Although considerable research has been carried out in wind tunnels, many experiments have been conducted on the flow of fluids through pipes and channels whose walls had been artificially roughened.

While the range of flow conditions in early experiments was not great, these experiments appear to have established that:

1. The principle of dynamic similarity applies to the flow of fluids through rough pipes.

2. So long as the fluid flow is viscous, the character of the pipe wall has no effect on the flow.

3. For pipes with wavy walls the coefficient of friction is equal to the coefficient of friction for smooth pipe times a factor which usually has a value between 1.0 and 2.0.

4. The coefficient of friction of a rough pipe reaches a constant value with increase of the Reynolds' number and that this constant value depends on the degree and nature of the roughness. It appears that the seamless pipe can be described as follows:

1. Roughness ranging from .0001 in. to .001 in. total height and from .002 in. to .010 in. in width.

2. Waves on dimensional changes ranging from .001 in. to .004 in. total height and from .020 in. to .100 in. apart.

While the electric-weld pipe has:

1. Roughness ranging from .00005 in. to .0005 in. in height and from .001 in. to .010 in. in width.

2. Waves ranging from .0005 in. to .0013 in. total height and from .010 in. to .150 in. in width.

The problem involves questions with respect to the effect of (*a*) waves or dimensional changes; (*b*) roughness of the particular shape, and (*c*) the particular arrangement of the roughness projections.

The paper reviews literature on the subject and presents calculations for dealing with the problems which are involved.

●

Large All-Welded Pipe Lines

H. J. CARSON (vice president, Northern Natural Gas Co., Omaha, Neb.).

SOLID welded construction in pipe lines has generally been limited to sizes varying up to 16 in. in diameter, although lines in larger sizes up to 26 in. have been built. The determination of the maximum size in any area has evidently depended upon individual views regarding the integrity and strength of the welds and whether the strength of the steel in the pipe and the slack obtainable in the line are amply sufficient for overcoming the stresses caused by temperature changes in combination with the stresses due to internal pressure.

With improvements in all phases of welding and the increased experience and efficiency of welding personnel and a substantial background of experience in solid-welded lines, there is now little question regarding the integrity and strength of welds. The more uniform wall thickness, sizing, and squareness of pipe ends as furnished by manufacturers has facilitated welding in the larger sizes.

Late in 1939 the Northern Natural Gas Co. completed the construction of 243 miles of 16-in. o.d. all-welded pipe line extending from its west main line near South Sioux City, Neb., to its east main line near Minneapolis, Minn.

The line was laid with ample slack in a 32-in. ditch with a minimum cover of 36 in. and is designed for an operating pressure of 600 lb. Construction was carried on in four sections with four complete construction crews. Work was commenced August 22, 1939, and completed November 24, 1939. Except for a few days, unusually fair weather and moderate temperatures prevailed throughout the period.

Three beads were used on all rolling welds and three and four beads in the bell hole and tie-in welds, all without backup or chill rings. In stream crossings, peat bogs, and swampy places, the welds were reinforced by split welding sleeves. Both electrically welded and seamless pipe 16 in. o.d., ¼-in. wall, was used, with a minimum yield point of 42,000 lb. and a minimum tensile strength of 60,000 lb. specified for the steel in the pipe. On each side of each main-line plug valve the pipe was anchored by concrete blocks with plates, reinforced by gussets, welded to the pipe and bearing on the block.

The line was laid when atmospheric temperatures were relatively low or about 50° F., which with a probable minimum winter temperature of approximately 30° in the pipe, limits the temperature stresses to a range of about 20° F.

●

Studies in Microbiological Anaerobic Corrosion

RAYMOND HADLEY (Susquehanna Pipe Line Co., Philadelphia, Pa.).

INVESTIGATIONS have included corrosion studies under many diversified conditions including atmospheric exposure, high and low temperatures, aqueous and nonaqueous solutions of acids, salts and gases, soil action, galvanic couples and stray-current electrolysis, to name but a few.

This paper directs attention to but one of the many phases of the corrosion process, one which occurs only under strict anaerobic conditions.

1. The basic theory underlying the microbiological anaerobic corrosion process is in accordance with the more commonly accepted electrochemical theory of corrosion, the principal difference being the manner by which the cathodic hydrogen polarization is removed, and the mechanism causing the suppression of the ferrous ions.

2. One of the component salts of the products of corrosion is FeS, which can under the conditions stated result only from the metabolic activity of the sulfate-reducing bacteria and may therefore be taken as a definite indication of bacterial corrosion, if found in the corrosion products.

3. The prevalence of microbiological anaerobic corrosion, as shown by numerical data obtained from pipe lines in certain eastern states, is astonishingly common and is sufficient to account for a large quantity of the corrosion of the pipe lines from which these data were obtained.

4. Pit-distribution curves show that for similar locations, geographically very close together, the pit depths where bacterial corrosion occurs are greater than pit depths found at locations where bacterial corrosion is absent.

5. Pits occurring in a pipe at a location where microbiological anaerobic corrosion is not present do not represent the same degree of hazard, as do the characteristic slabs of the same depth found where the sulfate-reducing bacteria are active.

6. The microbiological anaerobic corrosion process is not a process of the "self-stifling" variety. The pit-depth rate, instead of decreasing with time, actually shows a pronounced increase with time in some locations where the sulfate-reducing bacteria are active.

7. The data available at the present time from American sources relative to microbiological anaerobic corrosion is sadly inadequate, and should be supplemented not only by additional data pertaining to the distribution of this corrosion, but also by methods with which it may be economically minimized.

●

Distribution Design for Heavy House-Heating Loads

G. J. HECKENDORN (gas distribution engineer, Public Service Co. of Colorado, Denver, Colo.).

THE purpose of this paper is to show how a heavy house-heating load can be served by an existing system serving the usual domestic load with relatively little additional expenditure.

The matter of pressure control deserves special consideration.

There are three types of systems for distributing gas; namely, the low pressure, the high pressure, and the Doherty Ideal or proportional-pressure system.

In the low-pressure system, relatively large mains are used, pressure delivered to the customer's meter is regulated by district governors and no individual house regulators are used. Of recent years, regulators have come into common use on central house-heating appliances, floor furnaces, and refrigerators, but only a limited number is used on other appliances. In some cases, pressures are raised manually according to a time schedule, or an automatic device is used for the same purpose. Devices which raise the pressure according to the load or which use a round-the-block control are sometimes installed. In general, however, the amount of boost which can be obtained is limited by the allowable variation in pressure delivered to the customer.

In the high-pressure system, relatively small mains are used and regulators are set on each service. In general, the pressure is set high enough to supply the peak load and changes made in pressure setting are seasonal.

In the Doherty Ideal or proportional-pressure system, as used in Denver, relatively small dis-

(Continued on Page 160)

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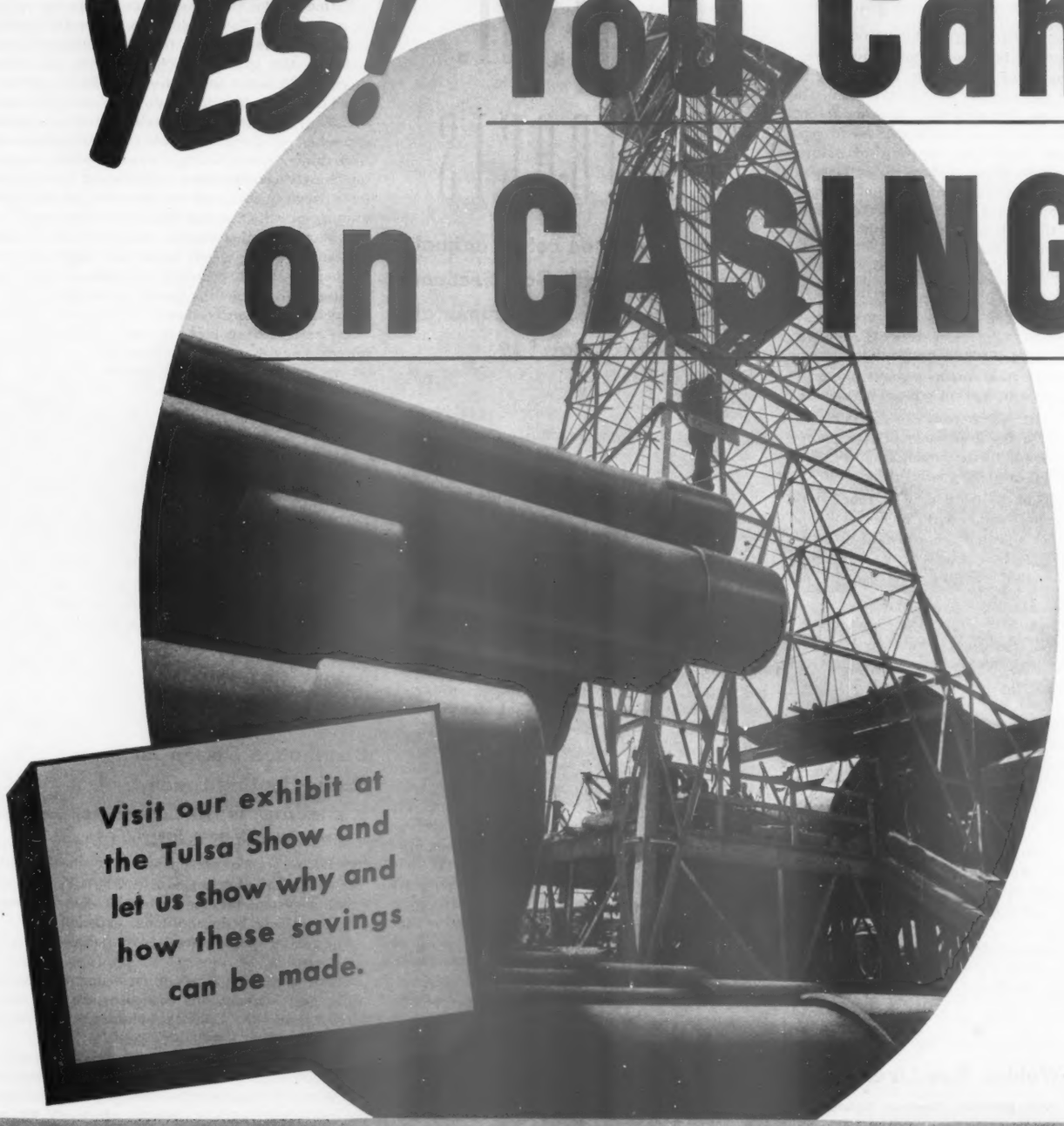

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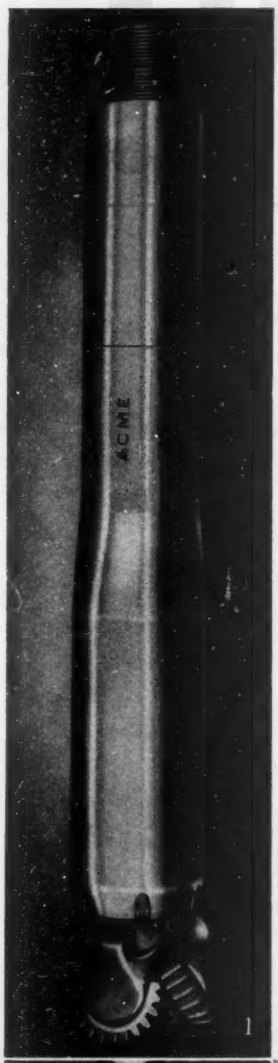

The "Newest Thing Under the Sun" for Keeping Rotary Drillers Out of a Mess of Trouble.

"There's no such animal," said the ruralite on seeing a giraffe for the first time. That same expression is now being applied to Acme's new, perfected, proven "MUD COLLAR." But when rotary drillers *know* what it is—*and will do*—they enthusiastically agree that, *"there is such a tool* and it's nothing short of a 'Modern-day Marvel'."

You MUST *see* Acme's MUD COLLAR to *know* what it is. You MUST understand how it operates to appprecciate what it will do—the great savings it can effect in rotary drilling. Be sure to see it at the Oil Show.

Acme's MUD COLLAR is just what its name implies—a collar, with rotary tool joint, used between the rotary bit and drill collar. It houses a fluid "cylinder," from which 6 streams are diverted to the outside of the bit, keeping it clean, and preventing mud rings from forming. Delays in pulling out are thus practically eliminated. By keeping the bit clean, power consumption is reduced, cutting is faster, easier and smoother—making better hole, with less strain on drill pipe. All hazards of drilling—including time and money wasting fishing jobs—are greatly reduced.

With this brief word-picture, surely you are all curious to know what this WONDER TOOL is ALL ABOUT! See it—at the Oil Show.

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(Patents Applied For)

(1) Acme's MUD COLLAR—with bit assembled—ready to go into trouble-preventing, profit-protecting service.

(2) Acme's MUD COLLAR "in Action." 6 Fluid streams keep bit clean.

(3) Acme's MUD COLLAR on the job—it has just come from hole "as clean as a whistle."

(4) Mud rings, like this, are "going out of style"—with Acme's MUD COLLAR.

PROMINENT USER SAYS:

"We are highly pleased with Acme's MUD COLLAR. Ours has made about 14 wells to date, eliminating lost time and trouble from 'balled up" bits. It has been a great benefit on fishing jobs, as it prevents mud from channeling to one side of the bit. In fact, we have enjoyed so many benefits from its use, we now unhesitatingly recommend the MUD COLLAR to the entire Oil Trade."

Signed:

T. B. HUNTER, Vice Pres., Schoenfield-Hunter-Kitch Drilling Co., Salem, Ill.

Building Oil Pipe Line Across Continental Divide

(Continued from Page 150)

same size is used between the stations. Scraper traps were not installed on this line because it was believed that scrapers could be run through the long distances between the stations on this line. Using a new type of scraper under development, tests will be made to determine whether the intermediate traps will be required. The intermediate locations already selected would require the running of scrapers from 45 to 60 miles before removing from the line.

At suitable locations along the isolated sections of the line over the mountains and through the canyons, shelter houses have been built and equipped for housing six to eight men. Each shelter house is supplied with a stove, cots, bed clothing, food, fuel, and a connection to the company's telephone line. These facilities were provided for the protection of employes who might find it necessary to seek shelter at nightfall or during the bad storms which are experienced in the mountain ranges.

For operating and maintenance purposes, milepost markers have been set along the entire length of the line. For convenience in patrolling the line, stiles are set at all fences.

Technical Aspects of Carter Pressure Core Barrel

(Continued from Page 129)

the cell is fitted into the bath in which there is installed a 450-watt electric coiled heating element. The heater plug is fastened to the bracket for the wooden handle. A switch on the cord with off-and-on positions provides for the control of the element.

A strainer cloth located in the bottom of the water reservoir prevents any dirt or grit passing into the pump and check valves. The reservoir is provided from dust with a tightly fitting cap. The principal check valve is located in the pressure line near the gage connector. The 1,500-lb. gage indicates accurately pressures from 100 to 1,000 lb. per sq. in.

In order to make a measurement of the rate of water loss from drilling mud under pressure, a sample of the mud is placed in the filter cell. Hydraulic pressure is then applied to the system by means of a hand pump, and the pressure adjusted a little below the pressure at which the measurement is to be made. The pressure on the air side is then adjusted to the desired value by means of a regulator and the air line may then be connected, by means of a valve, to the filter system. The valve at the bottom is then opened and the filtration proceeds at substantially constant pressure.

In addition to the work on coring procedure that has been planned, considerable work on the analysis of pressure cores is in progress, and it is expected that some interesting data will be available in the near future.

Greater Use of Mississippi

Mid-Continent refiners foresee greater use of the Mississippi River as a means of distributing petroleum products throughout the middle western states. Recently the Standard Oil Co. of Indiana announced its program of building barges, towboats and terminals to permit distribution of products from its Wood River, Ill., refinery.

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Records on file tell how NATIONAL Seamless Drill Pipe produces thousands of feet of hole under the toughest drilling conditions with dependable performance . . . how NATIONAL Seamless Casing withstands terrific pressures . . . how NATIONAL Seamless Tubing resists fatigue and wear, protects profits when the well goes on the pump.

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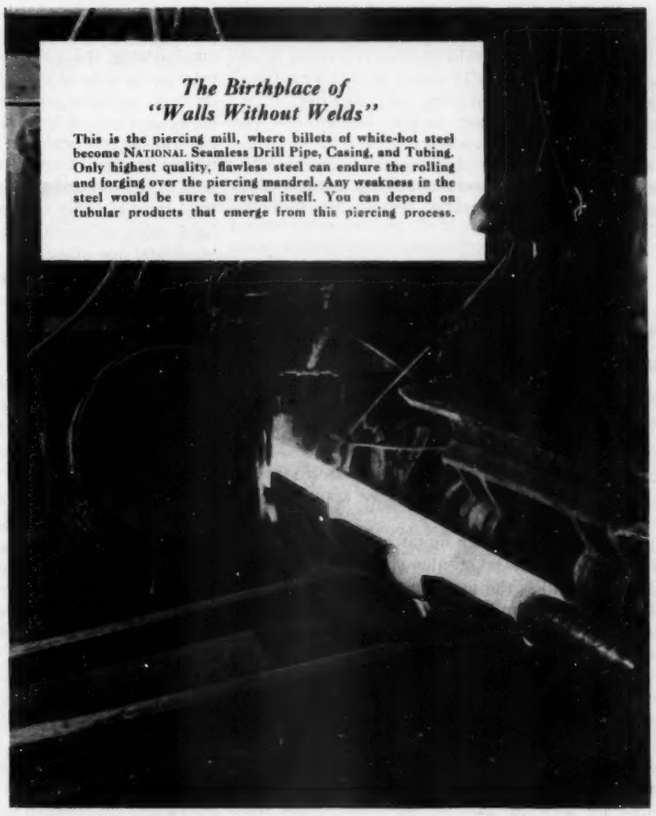
Ask the leading operators in any field. They'll tell you "It's smart to use Seamless—better to trust your profits to reliable 'Walls Without Welds.'"



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This is the piercing mill, where billets of white-hot steel become NATIONAL Seamless Drill Pipe, Casing, and Tubing. Only highest quality, flawless steel can endure the rolling and forging over the piercing mandrel. Any weakness in the steel would be sure to reveal itself. You can depend on tubular products that emerge from this piercing process.

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

A. G. A. Abstracts

(Continued from Page 153)

tribution mains are used and regulators are set on each customer's service. Station pressures are regulated to suit the demand upon the system, being sufficient only to supply customers at the points of lowest pressure. With heavy loads, it is obvious that individual house regulators must be used to maintain a uniform pressure at the customer's meter.

Pressure surveys are useful in determining the loads carried by, and the condition of, a distribution system. The prime essential is to have a set of accurate simultaneous pressure readings, from which the pressure drops between the points in question can be determined. With a flow computer, the indicated flow is easily determined, by using the proper length, size, gravity, and pressure drop, assuming, of course, that the pipe is reasonably clean. Stoppages are indicated by excessive drop in any section of pipe.

It has been our experience that recording pressure gages are generally more satisfactory than U-gages, particularly during cold weather. It is essential, however, that certain precautions be taken to secure the necessary accuracy.

It has been shown that heavy house-heating loads can be served economically by the use of a proportional-pressure system employing individual house regulators.

●

Determination of Current Required For Cathodic Protection

SCOTT EWING (research associate, American Gas Association, Washington, D. C.).

THE data obtained in a laboratory investigation of the potential behavior of steel electrodes in soil to which cathodic currents are applied indicate that:

1. The potential of the metal with respect to a reference electrode taken alone is no criterion of the rate at which the metal is corroding.

2. A suddenly applied protective current always causes the potential to shift in the negative direction because the current exhausts the oxygen or increases the hydrogen content of the solution in contact with the metal.

3. The application of the protective current for several days may cause the zero current potential to change in either the positive or negative direction. Hence the ultimate change in potential cannot be used to indicate whether or not the corrosion is prevented.

4. The protective current always causes alkali to accumulate on the cathode surface. If there is sufficient oxygen, this alkali causes an oxide film to form and hence causes the potential to become more positive. If there is no oxygen the accumulation of alkali causes the potential to shift in the negative direction.

5. At low-current densities, certain reasonable assumptions lead to the conclusion that the current density-potential curve is a straight line. The straight line is sometimes obtained at low-current densities provided the points are obtained quickly so that alkali does not accumulate at the metal surface.

6. When the current density exceeds the protective value the log current density-potential curve is a straight line and it is called an overvoltage curve. This curve is nearly always obtained with steel cathodes in soils.

7. The current density at which the overvoltage curve begins is the minimum current density which will prevent corrosion. It has not been possible to determine this minimum current with precision in the laboratory, but the same precision, if attained in the field, will be sufficient for most practical purposes.

●

Industrial Gas—What It Means to Us

D. W. HARRIS (vice president and general manager, Arkansas Louisiana Gas Co., Shreveport La.).

THE term "industrial gas" as used in the manufactured-gas industry includes the sale of gas to certain commercial establishments and other consumers of like volume, but for the purpose of this paper, the term refers to that classification of the natural-gas business which renders service to consumers engaged in industry and covers fuel supply and process heating for such consumers as differentiated from domestic and commercial consumption.

The importance of this phase of the business as presently constituted can best be pointed out by emphasizing the value of industrial revenues in relation to a total operating income. In order to do this, we have obtained general sales and revenue information from six of the major integrated natural-gas companies in the South and Southwest, which produce, transport, and distribute a major part of the natural gas sold in that area. The 1939 total sales of these companies, exclusive of certain field sales to other transmission companies and incidental operating uses, amounted to 419,000,000,000 cu. ft. of gas, with gross revenue of $87,000,000. The industrial sales accounted for 65.1 per cent of the volume and 37.4 per cent of the gross revenue. The total volume of sales of these companies was 32 per cent of the total natural-gas sales in the United States for the year 1939 and was 19.4 per cent of the gross revenue received by all natural-gas companies in the United States during that year. The total natural-gas sales in the United States for the year 1939 were 1,309,000,000,000 cu. ft., with gross revenue of $449,000,000.

An analysis of the gross revenue and net earnings of these companies, as taken from Moody's and other reliable public sources of information, indicates that the net earnings before fixed charges of the various companies, per dollar of gross revenue, varies from 45 to 60 per cent; and that the net earnings per dollar of gross revenue, after fixed charges, varies from 14 to 28 per cent. A rough tabulation of these net earnings, before and after fixed charges, indicates that if these companies were to lose all their industrial business and the net earnings which this business contributes, they would be forced to raise their domestic and commercial rates from 10 to 50 per cent, depending upon the company, the cost of gas, and the type of markets supplied by that particular company.

The availability of natural gas for industrial purposes has without doubt been a material contributing factor to this transition, as well as in the development of natural resources such as cement manufacture, bauxite manufacture, brick manufacture, paper manufacture, and other similar activities. Vast natural resources involving chemical and process development are available for further exploitation and the availability of natural gas for industrial and process use undoubtedly will contribute to a successful economic solution of problems, which at the present time prevent commercial development in these fields. As a striking example, we might refer to the vast iron-ore deposits of East Texas and to the promotional efforts being exerted at the present time to develop a reducing process which would utilize natural gas.

Our Experience With Underground Storage of Gas

F. H. FINN (geologist, Peoples Natural Gas Co., Pittsburgh, Pa.)

THE small area near Murrysville demonstrated to the company the advantage of a small storage reservoir, as it required a much smaller storage to build up pressures which would accomplish a large capacity of daily delivery from the wells. This pool will probably be equipped to store gas up to pressures of 500 lb. during the coming year, and it is believed that it will produce well in excess of 20,000,000 cu. ft. per day if this is done. Back-pressure tests are now being made to determine the capacity of the wells under various rock-pressure conditions.

In order to build the rock pressure up to 500 lb., it will, of course, be necessary to pump the gas in; however, it will feed out naturally against the prevailing line pressure in the immediate area. The pool also is very close to Pittsburgh, one of the large markets served by the Peoples Natural Gas Co., hence, the effect of any gas withdrawn from this storage is immediate.

To date, very little expense has been necessitated in the preparation of this area for storage. The major expense has been the reconditioning of the wells and the installation of a metering station. This will probably be augmented by a small pump station in the near future.

As a result of the experience of the Peoples Natural Gas Co. and the New York State Natural Gas Corp., it has been found that the most effective storage for all practical purposes is in small pools where large open-flow wells are available, thus resulting in high capacity to produce for a relatively small amount of gas stored. It is also considered important that the storage take place under conditions whereby the gas is pumped only one way, i.e., either pumped into storage or pumped out of storage. Pumping of the gas both ways increases the expense considerably.

Storage has been found to be an excellent solution for the problem of peak loads, as the storage process can be accomplished at times when gas is not needed so badly for the market, and withdrawal can be made at a rapid rate when market requirements are excessive.

It is believed that the most economical type of storage is that which can be made in pools which will hold from 500,000,000 to 3,000,000,000 cu. ft. of gas at a rock pressure of not more than 500 lb., and from which the gas can be withdrawn at a rate which will accomplish complete emptying of the storage in 6-month time if it is needed.

●

Use of Pressure Regulators on Gas Appliances

HARRY L. MASSER (executive vice president, Southern California Gas Co., Los Angeles, Calif.).

REGULATORS, particularly for gas furnaces and floor furnaces, as are now required, should not be the sole guardian for the safe and satisfactory operation of the appliance. The appliance itself should have a reasonable range of tolerance for variation of B.t.u. input above its rated capacity.

The use of appliance regulators for other than central heating appliances and floor furnaces should be continued as optional accessories but not made mandatory.

Regulator manufacturers should recognize the need for designing regulators of maximum dependability under ordinary operating conditions, which in turn will call for the minimum of servicing, which can be securely sealed and which cannot be set to prevent the valve from seating, and thus give uncontrolled line pressure.

Progress in METALS

By W. L. NELSON

Quenching Oils and Tests

J A. JONES and W. W. STEVENSON report on "The Properties of Quenching Oils," The properties of these oils are given in the accompanying table. In addition to these tests, other tables of specific heat, and thermal conductivity are given. The general significance of these tests, is indicated by the authors as follows:

1. *Saponification value.*—"In a refined mineral oil the saponifiable matter present is practically negligible, but the fatty oils have a high saponification value. In compounded oils, therefore, the content of saponifiable matter is an indication of the amount of fatty oil present."

2. *Acid value.*—"New samples of mineral and animal oils contain practically no free fatty acid, whilst vegetable oils contain only a small amount, but the content increases with time of standing and by oxidation. The acid value of an oil is therefore an indication of quality and age."

3. *Iodine value.*—"The iodine value is a measure of the unsaturated aliphatic compounds present and depends on the fact that these compounds are capable of forming additive compounds with the halogen elements. The iodine value is a constant quantity for any particular oil, but varies with different types of fatty substances. The value does not alter materially with the age of an oil unless definite chemical changes have occurred, and hence it is very useful as a means of identification of oils."

4. *Flash point.*—"The main value of a flash-point specification in connection with quenching oils is to insure a sufficiently high figure to avert the possibility of oil fires, as a low flash point indicates the presence of light fractions."

5. *Specific gravity.*—"It is, to some extent, an indication of the origin of an oil, but it bears very little relationship to the viscosity. It is of interest in regard to the purchase of oils, in that the lower the specific gravity the greater is the volume of oil obtained per ton. It has been included in the present work mainly for the sake of completeness."

The special Report No. 24 of the Iron & Steel Institute (London) also entitled Second Report of the Alloy Steels Research Committee, contains several papers on quenching oils and laboratory quenching tests. It is believed that a short discussion of these developments will not only interest our Metals Progress readers but will also be of interest to petroleum refiners and marketers.

6. *Viscosity.*—"The value of viscosity figures for quenching oils lies in the fact that the viscosity determines very largely the speed with which convection currents can be set up in the quenching bath, i.e., the rapidity of replacement by cold oil of the hot oil immediately adjacent to the hot steel. The thinner the oil the greater is the movement in the oil bath; also, the "carrying away" loss of oil on the quenched steel is determined by the viscosity of the oil. On the other hand, very thin oils are automatically associated with high vaporization, during quenching, with consequent rapid deterioration."

7. "Volatility, or loss by evaporation, is expressed as the percentage loss obtained when a known weight of oil is heated under standard conditions. The results reported have been obtained by the following method, devised by B. W. Methley: 15-20 g. of oil are placed in an open 2¼-in. diameter porcelain crucible, which is directly heated by a bunsen flame. The oil temperature is maintained at 200° C. for 2 hours and the loss in weight is determined.

"This test was devised with particular reference to quenching oils, in order to simulate in the laboratory the hot-spot effects in the quenching of steel.

"The volatility of quenching oils should be as low as possible, as oils with a high content of volatile fractions will show high losses in use, with automatic thickening of the oil. The uniformity of quench is also affected, owing to gas formation at the commencement of the quenching operation."

8. *"Tendency to Sludge* (B.S.S. 148-1933) is measured by maintaining a definite quantity of the oil (100 g.) at 150° C. in contact with a copper catalyst for 45 hours and passing purified air through the oil at a fixed rate of 0.07 cu. ft. per hour. The oil is then extracted in petroleum spirit, allowed to stand for 16-24 hours and filtered, the residue being dried and weighed. The sludge is calculated to, and reported as, a percentage of the oil.

"The sludging test was devised originally for measuring the tendency to sludge of turbine oils, but the value is of interest in the comparison of other types of oil as a relative measure of the separation of solid matter under fixed conditions of test. In connection with quenching oils, the formation of sludge with continued use of the bath will tend to alter the speed of quenching the steel.

"Whereas the tendency to sludge test may, in general, be relied on to give an indication of what may be expected in use, the figures are not capable of strictly mathematical interpretation.

9. *"The Air Ministry Oxidation Test* is a modification of the sludging test, and consists of passing air at the rate of 15 l. per hour for periods of 6 hours on consecutive days through 40 ml. of oil contained in a boiling tube; the latter is supported in an oil bath maintained at 200±1° C. during the test. Ramsbottom coke number and viscosity determinations are carried out before and after oxidation, in order to obtain the increase in the coke number and the ratio of the viscosities.

"The oxidation test, therefore, is an empirical method of determining the tendency of an oil to thicken and to form sludge deposits. Both these factors are of importance in quenching oils in relation to their effect on the alteration of the speed of quenching with the age of the quenching bath."

10. *"The Ramsbottom coke number* is the percentage of carbon residue obtained when the oil is ignited under carefully controlled standard conditions. A glass bulb of fixed dimensions, drawn out to a capillary at the top, is used; it contains 3.75-4.25 g. of oil, and is heated in a metal sheath immersed in a liquid metal bath at 550±5° C. The bulb is allowed to remain in the bath for a fixed length of time, after which it is reweighed and the carbon residue is determined.

"The Ramsbottom coke number gives an indication of the carbonaceous residue that may be expected in practice on complete decomposition of the oil in the absence of air. The test is carried out before and after the Air Ministry oxidation test as a guide to the rate of deterioration of the oil in use."

11. *Specific heat.*—"The specific heat is one of the factors which influence the rapidity with which an oil becomes heated, and in the temperature range 0-100° C. is usually of the order of 0.4-0.5 c.g.s. units."

12. *Thermal conductivity.*—"The thermal conductivity influences the rate of dissipation of heat which is applied to the oil."

Oils, A, C, and G, are straight mineral oils; oils B D, and E, are compounded oils; and F is a sperm oil—

PROPERTIES OF QUENCHING OILS EXAMINED

Oil sample—	AN.	AO.	BN.	BO.	C.	D.	E.	F.	G.
Saponification value. Mg. KOH per g.	Nil	4.8	7.21	10.09	1.4	3.5	4.36	143.0	Negligible
Acidity (acid value.) Mg. KOH per g.	0.38	2.06	0.62	4.65	0.14	0.71	0.60	5.10	Negligible
Iodine value (Wijs on 5 g.)	6.0	6.0	7.0	7.0	5.0	5.0	6.0	90.0	3.0
Flash point (Pensky-Martin closed) °F.	305	325	350	380	410	335	330	475	400
Flash point, open. °F.	330	345	385	390	425	355	350	505	425
Specific gravity at:									
60° F.	0.884	0.894	0.891	0.892	0.867	0.903	0.902	0.888	0.866
75° F.	0.880	0.886	0.885	0.887	0.860	0.898	0.897	0.883	0.861
100° F.	0.872	0.877	0.875	0.878	0.852	0.889	0.887	0.873	0.852
125° F.	0.865	0.869	0.866	0.870	0.843	0.881	0.878	0.864	0.843
150° F.	0.856	0.861	0.857	0.861	0.835	0.872	0.869	0.855	0.835
175° F.	0.846	0.852	0.849	0.852	0.826	0.864	0.861	0.846	0.826
200° F.	0.836	0.844	0.840	0.843	0.817	0.856	0.851	0.837	0.817
Viscosity (Redwood No. 1), Sec., at:									
60° F.	265	313	287	347	391	289	217	208	370
75° F.	180	209	184	208	249	180	145	141	230
100° F.	97	108	100	110	130	97	80	95	130
125° F.	62	69	65	70	82	63	55	67	80
150° F.	49	53	51	53	59	49	43	53	59
175° F.	41	43	42	43	48	42	38	45	48
200° F.	37	38	38	39	42	38	34	40	41
Volatility. Loss by weight, per cent	21.5	17.5	19.5	18	8	26.5	26.5	2.0	9
Tendency to sludge (B.S.S. 148-1933), per cent	1.34	2.6	1.52	3.58	0.64	1.77	1.51	0.05	0.85
Viscosity, kinematic (Stokes), at 100° F.	0.235	0.267	0.253	0.271	0.330	0.231	0.185	0.229	0.324
Ramsbottom coke number	0.11	0.47	0.11	0.62	0.12	0.19	0.10	0.24	0.07
Properties after Air Ministry oxidation test:									
Viscosity, kinematic (Stokes) at 100° F.	0.335	0.436	0.432	0.934	0.500	0.606	0.416	2.704	0.599
Ramsbottom coke number	1.45	1.77	2.02	2.41	0.98	2.49	2.30	2.03	1.28
Ratio of viscosity after to that before oxidation (Air Ministry)	1.43	1.63	1.71	3.45	1.51	2.62	2.25	11.80	1.85
Increase in coke number	1.34	1.30	1.91	1.79	0.86	2.30	2.20	1.79	1.19

the second letters N and O, refer to new and used oils respectively. No great significance can be accredited to the tests shown in the table, however, among the straight mineral oils, oils C and G are superior to A. Of the compounded oils, B is far superior to D and E. The sperm oil F is excellent for heavy work but care would be necessary in its use to maintain low bath temperatures and provide conditions under which thickening by oxidation will not take place.

Loss of oil during quenching occurs by vaporization, carbonization and by drip (or carryout). Thus a compromise in properties is necessary because mineral oils are somewhat volatile and the fatty oils are bad carbonizers.

The same oils were studied by T. F. Russell in "Some Tests on Quenching Oils" which is a paper pertaining to the development of a simple standard laboratory scale quenching test. A metal ball is heated in an electric furnace and dropped into the quenching medium. A thermocouple was attached to the ball and a photographic film was used to record the temperature of the ball during quenching.

Cooling appears to take place in three stages: (1) At first a rapid drop in temperature during which the ball is thought to be covered with a thin film of vaporized oil; (2) a second very rapid rate of cooling during which the sides and top of the ball probably are in contact with liquid oil; and (3) the normal phenomenon of cooling in which the entire ball is in contact with liquid.

Data on the various oils did not indicate any great differences between the oils, with regard to the rate of cooling, down to a temperature of about 600° C. Sperm oil F caused most rapid cooling, and mineral oil BN caused the slowest rate of cooling. The significance of the rate of cooling would be greatly affected by physical properties such as viscosity or volatility and so greatly as to overshadow to a large extent the type of oil.

G. Stanfield in "Quenching Tests in Various Media" describes another equipment for laboratory quenching tests in which a cylinder, rather than a ball, is used. The same oils were used but more attention was given to the effect of various metals.

●

Metallurgical Terms

Martensite

A.P.I. Code 28 states that martensite is "a microconstituent or structure in quenched steel characterized by an acicular or needle-like pattern. It has the maximum hardness of any of the decomposition products of austenite."

It is obtained by quenching from the austenite area of the iron-carbon diagram followed by tempering (or reheating), in the case of carbon steels, to a temperature not exceeding 200° F. It is stable below this temperature. Martensite is brittle but it can be used for such extremely hard tools or objects as razor blades, ball bearings or glass cutters.

●

Fitting Composition Products to Oil-Field Requirements

By F. R. COZZENS
Equity Oil & Gas Co.

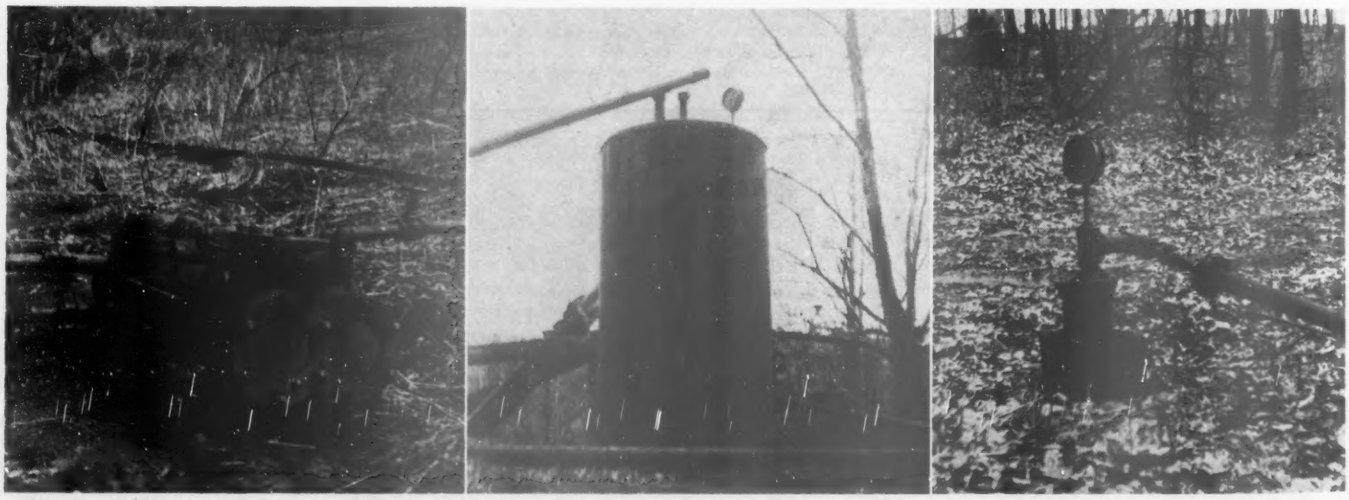
IN no other industry are the uses of asbestos and rubber-composition products more diversified than in the production of crude oil and gas, and no other industry has fewer of these items commercially made for its specific requirements. As a result, the oil fraternity must borrow products from many fields of enterprise and fit them on the job to individual needs. Many of these adaptations, while seemingly crude to the average industrialist, are getting results, and in this manner a wide-open opportunity is being created for the asbestos and rubber man who has a flair for inventions.

Asbestos-rubber cement, its uses commonly limited to the building trade, is being utilized in oil fields to control vibration in machinery foundations. The modern practice is to build foundations in sections of concrete, 1 ft. thick, and from 8 to 10 ft. wide, depending upon size and type of machine. Three to six such sections are erected sandwich style, with a 1-in. layer of plastic composition cement spread between. Reinforced by stud bolts, this arrangement makes a permanent foundation that reduces vibration 20 to 40 per cent.

From the plumbing and heating fields, pipe covering is being utilized 2,000 and 3,000 ft. underground to convey steam to inactive oil sands. From the same source, the oil-field worker adapts boiler-jacket material to provide insulation for his oil and water tanks. He controls evaporation with pipe and connection wrappers, usually cut from heavy-grade asbestos felt or building paper. Frequent coats of asbestos paint weatherproof his sheet-metal power buildings, and a durable roof for his drilling shed is commonly made by applying successive layers of refractory cement to a sheet of canvas.

From frequent contact with electrical industries, the oil man has located a wealth of material which can be worked over to fit his specific requirements. Insulated copper cable is used to fire nitroglycerin charges electrically and current from compressor-generators is transmitted to isolated leases; exposed connections are often wrapped with waterproof tape.

Since commercial brake lining is not generally available for cable reels, the oil-field worker uses 6-ft. lengths of canvas belting, which is kept in service by frequent applications of plastic rubber into which is stirred a binder of rock wool or asbestos fiber. In lieu of commercial protecting mats, the oil worker stores nitroglycerin, gelatin, and other high explosives in asbestos fiber. His temporary magazine is lined with insulation board, which is coated with plastic cement. He cuts strips of asbestos sheathing or wallboard to protect equipment against fire from his forge. He cuts arrestors from rubber blocks to control stray electrical currents. In fact, the oil-field worker is always cutting and fitting composition materials to some particular need. In this job he has become so proficient that demand for items containing asbestos has been increased more than 60 per cent within the past 5 years. There is, however, an urgent need for a plastic cement that will harden in salt water; for flexible pipe coverings which will withstand continuous immersion in oil; as well as for composition gadgets to replace metal accessories now standard equipment on drilling machinery. These and countless other suggestions are ripe for the manufacturer who will give more serious thought and attention to the oil industry.



Left: Oil pump for filling tanks has gaskets made of sheet asbestos and rubber snubbers to the portable skids; breakers made from rubberized asbestos prevent electrical currents along the line. Center: Volume tank for maintaining even pressure on wells. These tanks are covered most of the year with boiler wrapper (magnesia and plastic cements); when hot air is run into the tanks, the lead lines are covered with air-cell asbestos papers and when the tanks are cleaned an asbestos swab is used. Right: Well being repressured with air having the casing sealed with plastic cement (asbestos-rubber compound) and the air pipe cemented into a composition packer made of rubber-latex and resin

Engineers
Designers — Contractors

Recently Completed Topping and Dubbs Cracking Plant.

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Gas Recycling Plants
Pipe Still Heaters

* Subject to License From Universal Oil Products Co.

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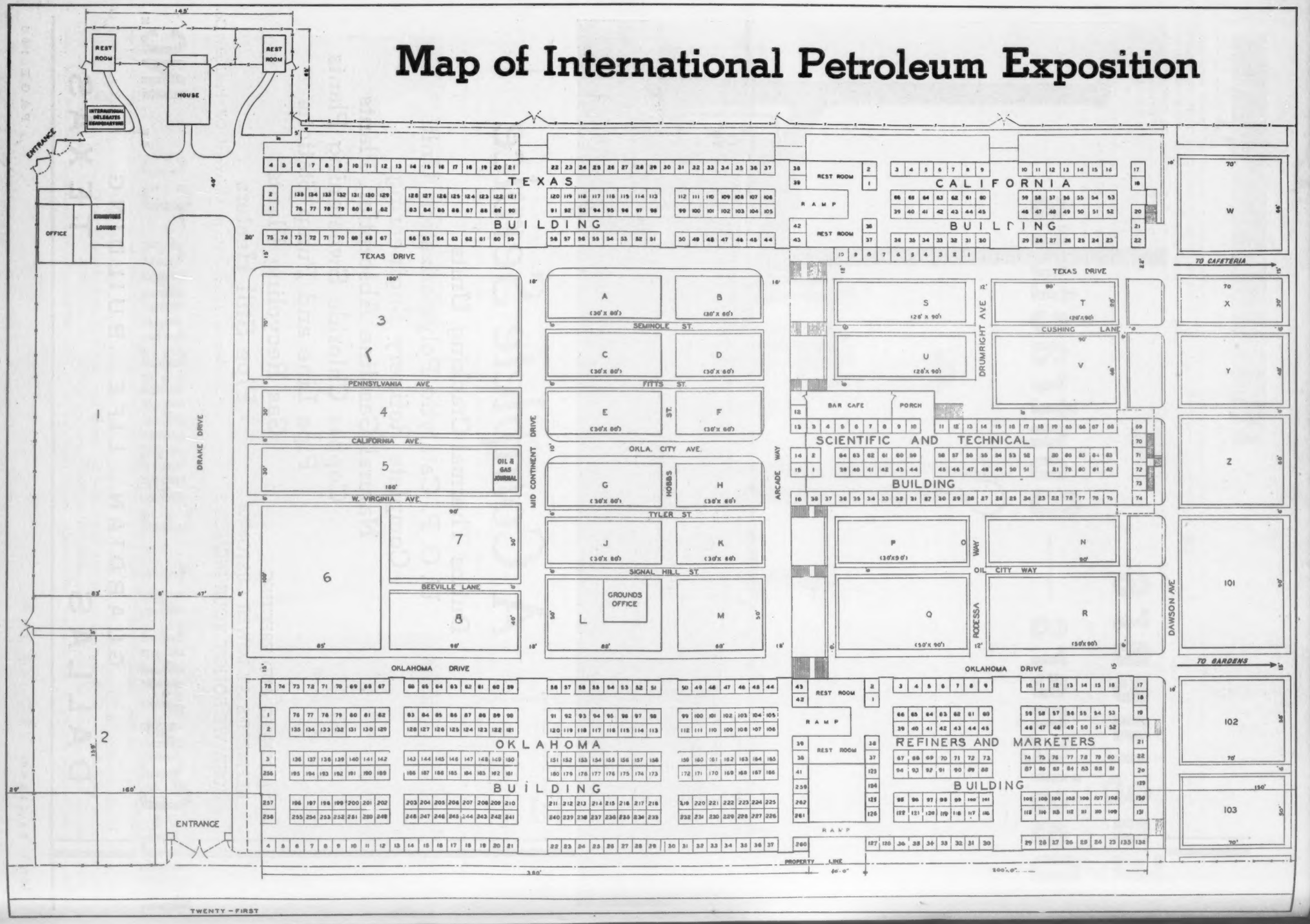
MID-CONTINENT ENGINEERING CO., INC.

GUARDIAN LIFE BUILDING

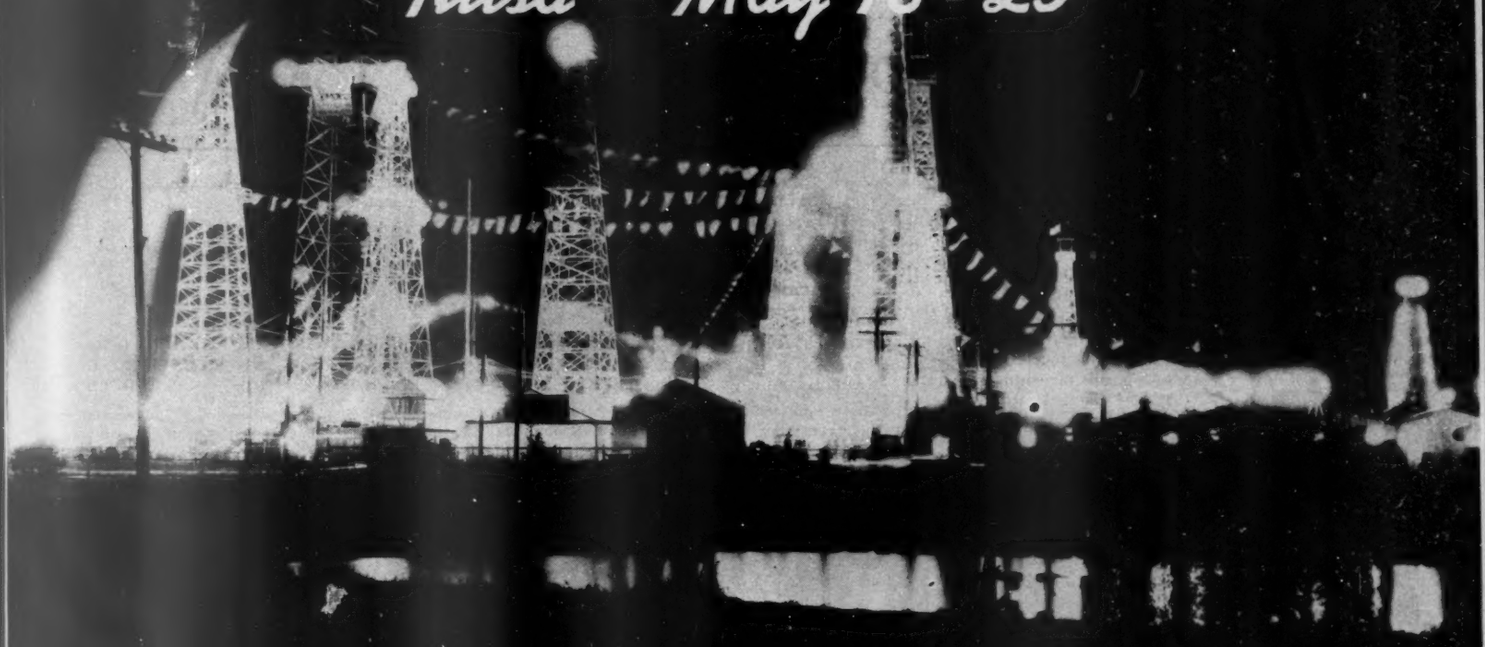
DALLAS TEXAS

Map of International Petroleum Exposition



INTERNATIONAL PETROLEUM EXPOSITION

Tulsa — May 18-25



DIRECTORY

EXHIBITS AND EXHIBITORS

Exhibits and Exhibitors

At International Petroleum Exposition, Tulsa, May 18-25

A-1 Bit & Tool Co.

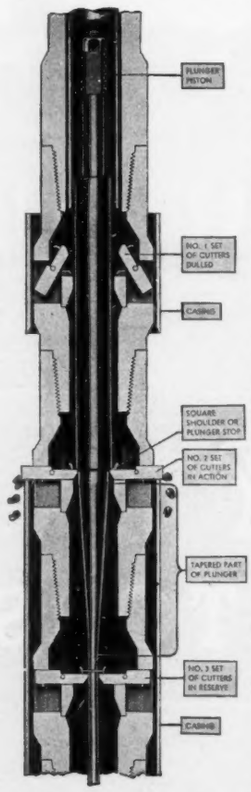
Houston, Tex.

Block V

In attendance

C. L. CLAUSEL — C. B. McDONALD
E. J. ROBISHAW — S. ROBISHAW

A new technique has been developed in milling out casing—a tool that completely mills up in shavings, an entire section of casing wall, including couplings, and pumps the cuttings out of the hole with the mud. A tool utilized for nitroglycerin sand or lime shooting, acidizing, setting screen against open sand section in lieu of setting in perforated casing, gravel packing and cement squeezing; for sidetracking through casing by removing casing wall first and then setting whipstock. The first operation of cutting through the casing at the desired depth is done by forcing a piston-plunger mandrel downward through a cylinder by pump pressure. This downward movement of the plunger mandrel piston forces the cutter knives outward and upward against the casing wall. Rotation of the tool causes these knives to cut through the casing wall and when the knives reach the horizontal plane the bottom part of the knives become the cutting edges and weight takes the place of the hydrostatic pressure, which has been relieved through the uncovered ports. This cutting-through mill is pulled out of hole when knives are dull, then the self-changing cutter mill is run in the hole with as many sets of knives in series as is desired.


PLUNGER PISTON
NO. 1 SET OF CUTTERS PULLED
CASING
SQUARE SHOULDER OR PLUNGER STOP
NO. 2 SET OF CUTTERS IN ACTION
TAPERED PART OF PLUNGER
NO. 3 SET OF CUTTERS IN RESERVE
CASING

This mill has a long tapered plunger which extends through a series of cutters (see illustration). Pump pressure forces this plunger down through the sets of cutters until the shoulder or plunger stop rests on No. 1 set of cutters, which have been pushed out into cutting position by the downward movement of the tapered plunger. No. 1 set of cutters are expanded in the window where the cutting-through mill has cut away the casing wall. Weight is applied to No. 1 set of cutters and when they are dulled the drill pipe is raised until the dull knives come in contact with the top of the casing window, then a pin is sheared, the cutters fold back and the tapered plunger drops down through No. 2 set of cutters which are expanded by this action. When this set of cutters is dulled No. 3 set of cutters is placed in cutting position in the same manner as No. 2, and so on.

Acme Fishing Tool Co.

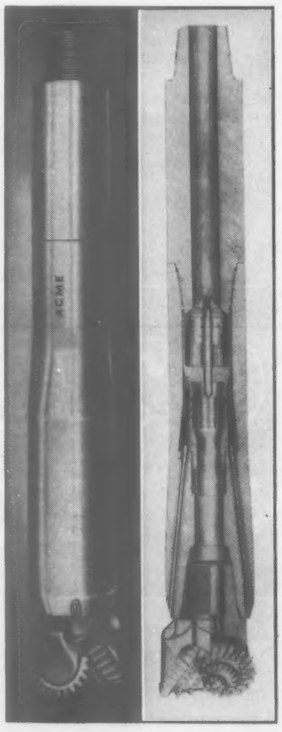
Parkersburg, W. Va.

Texas Drive, in specially made tent

In attendance

KARL L. ELLIOTT

The Acme mud collar, announced by Acme Fishing Tool Co., Parkersburg, W. Va., is designed to eliminate mud rings and balled-up bits in rotary drilling and to reduce the number of fishing jobs. The device is a collar, with rotary-tool joint, used between the rotary bit and the drill collar. It houses a fluid cylinder, from which six pressure streams are diverted to the outside of the bit.



With the six fluid streams constantly flowing over the outside of the bit—forced through the tubes under 200 to 1,000 lb. pressure—it is assured, according to the manufacturer, that the bit will be kept clean under normal drilling conditions. Mud rings and balled-up bits, therefore, become extremely rare. Delays in pulling out are largely eliminated. A clean bit means faster, smoother, easier cutting; making better hole, with less dragging and strain on the drill pipe.

Should it become necessary, however, to make a cutoff, the operator can cut within 26 in. of the bottom, by using an Acme mud-collar float, thus leaving a minimum of iron in the hole, making it much easier to work over and fish out. In fact, with the Acme mud collar, all hazards of drilling, including time-wasting and money-wasting fishing jobs, are greatly reduced, the manufacturer says.

The mud collar was devised by an experienced driller, followed by many months in the company's own engineering department and plant, devoted to design and mechanical perfection. After that came months of actual testing, under varying conditions, in the field.

This new oil-field invention is simple in construction, with an even dozen fixed (nonfriction) parts in the completed assembly.

Ahlberg Bearing Company

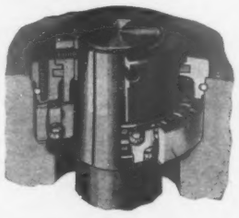
Chicago, Ill.

79 Oklahoma Building

In attendance

P. H. STAERK — W. L. HILL
O. K. WRIGHT — C. G. STONE
H. J. WRIGHT — P. G. HULL

The exhibit displays the company's all-bearing service which consists of CJB ball bearings, Bower "Micro-Honed" tapered roller bearings, straight roller bearings, thrust bearings, and the company's extensive line of pillow blocks and mounted bearings.



Newest addition to bearing line is a series of compact units designed to provide machine manufacturers with a simple and economical means of incorporating ball bearings in their equipment, wherever the housings are integral parts of the machine. These units are known as CJB Simplex machine units.

Units are made in three capacities—for light, medium and heavy-duty service, with choice of single-row, double-row or self-aligning bearings. The light series are mounted directly on shaft; others mount through a split adapter sleeve in a tapered bore bearing. Retaining caps are optional, at the same cost as standard units. Seals are frictionless, labyrinth type, made of Neoprene, the new oil-resistant synthetic rubber.

Airetool Manufacturing Co.

Springfield, Ohio

41 Kansas Building

Air-Maze Corp.

Cleveland, Ohio

16 Texas Building

In attendance

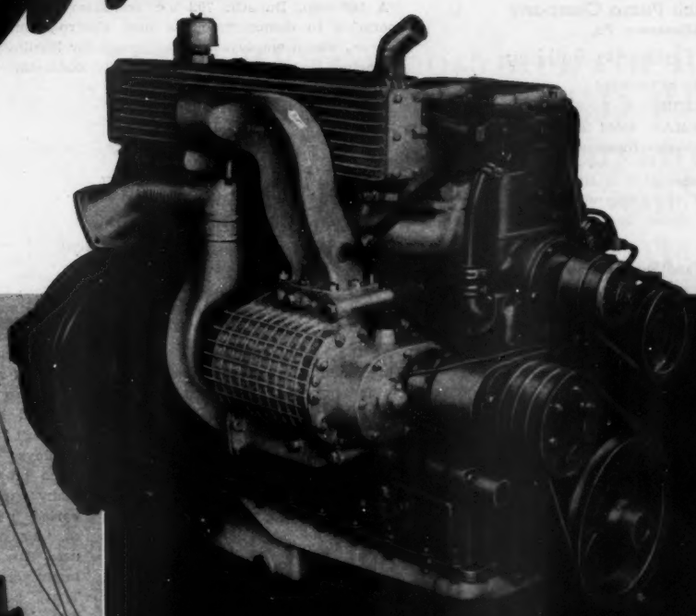
P. C. HUNGERFORD, chief engineer
C. J. GLANZER, test engineer
A. D. BARR, southwestern sales representative

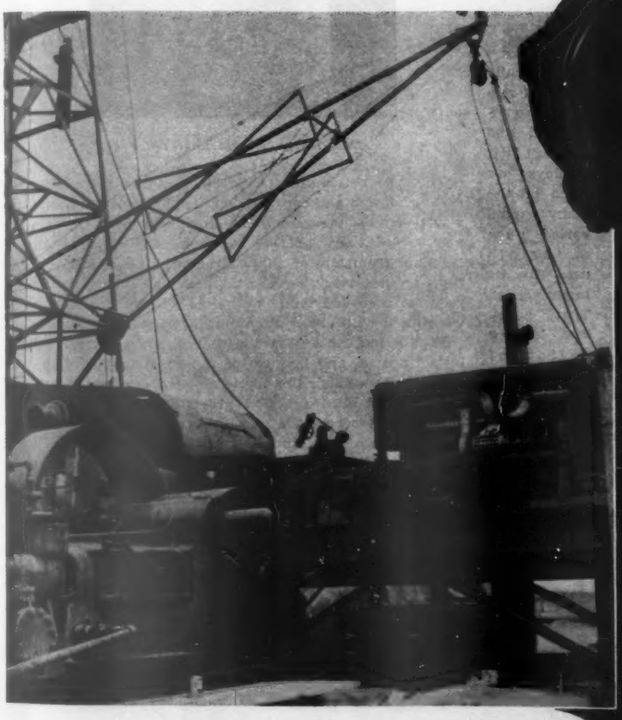
Featuring the company's oil-bath type filters, panel-type filters, Multimaze units, and panel-housing assemblies for installation on internal-combustion engines, air compressors, blowers, and air-conditioning systems.

A particular feature will be a specially constructed demonstrator showing heavy-duty oil-bath type air filters in actual operation. The bowl of the filter will be made of a special glass material and lights will be so arranged on this demonstrator to enable visitors to observe exactly what goes on inside an oil-bath type air filter.

3 New Models

AT THE MID-CONTINENT SUPPLY COMPANY'S EXHIBIT





This pair of 200 hp. Supercharged Cummins Dependable Diesels power a slim hole drilling rig operating near Eunice, N. M.

See them . . . get all the facts, because these new Supercharged Cummins Dependable Diesels are the answer to the maximum in diesel operating economy with the lowest weight per horsepower. If you can't attend the Show, write for new bulletin "The Logic of Supercharging." Cummins Engine Company, 1516 Wilson St., Columbus, Indiana.

MID-CONTINENT SUPPLY COMPANY • FORT WORTH, TEXAS

SEE MID-CONTINENT SUPPLY CO.

LOOK FOR THE BLUE NEON DERRICK

Air Reduction Sales Co.

New York

30-31-32-33-34-35 Oklahoma Building

In attendance

G. VAN ALSTYNE — R. D. HILLER
C. D'W. GIBSON — A. J. VROOMAN
J. J. LINCOLN, JR. — L. L. STEWART
G. V. SLOTTMAN — O. A. SUTTON
H. W. READE — O. C. HELVEY
A. N. KUGLER — J. F. PRYOR
L. D. SUGG — H. T. WADLEY
H. W. HAGGARD — G. F. DICKENS
A. F. HUNA — E. H. ANCHORS
M. F. DUNNE — D. W. McCANDLISH

I. B. YATES, Wilson Welder & Metals Co., Inc., representative.

E. C. ACKERMAN and B. N. GILMORE, National Carbide Corp. representatives.

Its subsidiary, Wilson Welder & Metals Co., Inc., will occupy 34 and 35 Oklahoma Building, where the Wilson "Yellow Jacket" will be displayed.

Its affiliate, National Carbide Corp., will occupy 30 Oklahoma Building where National Carbide will be displayed.

Albertson & Co.

Sioux City, Iowa

35-36 California Building

The Aldrich Pump Company

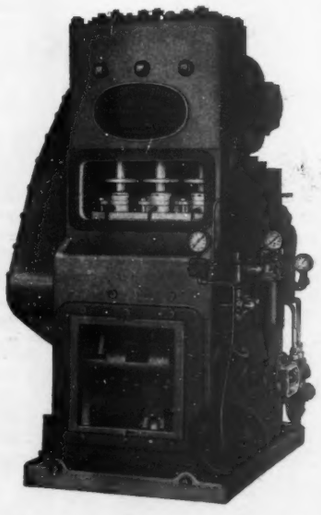
Allentown, Pa.

Booth 32 California Building

In attendance

LLOYD T. GIBBS
L. T. BORNEMAN, sales manager
J. E. GROFF, development engineer

Illustrated and in operation is the newly developed Aldrich-Groff "Powr-Savr" pump which is of the variable-stroke vertical triplex type, designed for still-



charging, pipe-line, boiler-feeding, steam-desuperheating, etc., service. Pumping problems involving handling of highly viscous or light liquids under high pressures or temperatures requiring variable capacities can efficiently be handled automatically by pressure, temperature or liquid-level variations. Pump being of constant-speed variable-stroke design, constant-speed A.C. motors or steam turbines can thus be utilized, whose economy at fractional loads is considerably improved as compared to variable-speed operation as heretofore necessary. The entire running gear is totally enclosed in an oiltight frame and all bearing points are pressure-feed lubricated to adapt the pump to exposed installations for severe continuous service with a minimum of attention and maintenance.

Although just recently announced, several units are in actual operation on butane pipe line, butane still-charging, boiler-feeding and desuperheating services. All of these are producing higher efficiencies and greater economies than guaranteed. Pumps on order with the manufacturer, together with those already in operation, will give distribution of installations well over the United States and Canada and on board ship.

Allen-Bradley Co.

Milwaukee, Wis.

123-124 Oklahoma Building

In attendance

ALLEN K. WOLFE, sales engineer, Milwaukee
FRANK HODIK, electrical engineer, Milwaukee
PAUL BERRY, district representative, Oklahoma City

The simplicity and freedom from trouble of solenoid motor control is to be demonstrated in this exhibit. The display will include motor starters for polyphase and for single-phase motors, among which will be the well-known Bulletin 709 across-the-line starting switch, and also reversing switches, multispeed motor starters, resistance-type starters, and transformer-type starters. These starters will be shown in standard and watertight enclosures as well as in enclosures for hazardous locations. In all these starters, the solenoid construction of the contactors will be predominantly featured. Combination starters, consisting of a starting switch and disconnect switch or circuit-breaker assembled as a single unit, will be shown with various types of enclosures—both air-break and oil-immersed. Also included will be a wide variety of control units, including contactors, push-button stations, limit switches, motor plugging switches, shipper-rod switches, float switches, alternating-current solenoids, and overload relays of the thermal and magnetic types.

A 100-amp. Bulletin 702 a.c. contactor will be in operation to demonstrate the new electro-permanent magnet, which employs a novel means for holding the contactor closed without keeping the contactor coil energized.

Allied Paint Co.

Tulsa, Okla.

3 Kansas Building

In attendance

DAVE BOYLAN, president
AINSLIE PERRAULT, vice president
R. M. GUNN, vice president
A. T. SANDERS, superintendent
FRANK PLATT, manager of petroleum sales
R. E. STANFORD, trade sales

At the exhibit the visitor will see paint actually being made before his eyes on the exact replica of regular factory equipment. In addition there will be educational and interesting displays of some of the many and varied raw materials used in its manufacture. That harmless-looking gallon of paint which is slapped on walls or equipment might be resins from far-off Africa, sienna from sunny Italy, oils from the hills of China or from our friendly neighbors in South America, zinc oxide from our sister state of Missouri and petroleum thinners from oil refineries. A can of paint is veritably a League of Nations, with the materials composing it coming from every distant corner of the globe.

Louis Allis Co.

Milwaukee, Wis.

53-54 Texas Building

In attendance

L. F. KEELY — J. G. GREEN
T. D. WILLIAMSON, SR. — J. D. BRANCE
T. D. WILLIAMSON, JR. — A. C. KRACHY
W. WOOBANK — R. K. ALBERT
V. B. HOOPER — L. S. PAWKETT
C. F. NORTON — P. E. ROGERS

Displaying complete line of electric motors especially designed and built for use in the oil-production and refining industries. Featuring new explosionproof motor and a spectacular splashing demonstration of the company's splashproof motor to demonstrate that this motor will withstand the most severe rainstorms when used on outdoor pumping applications.

Allis-Chalmers Manufacturing Company

Milwaukee, Wis.

Blocks A, B, D, and S

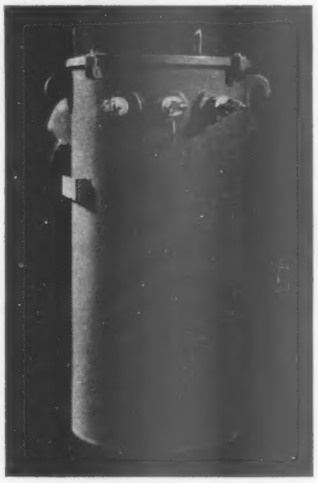
In attendance

OSCAR HAAS, manager of the Tulsa office, will be in charge of the general machinery exhibits.

The tractor division display will be under the supervision of the Oklahoma City branch. There will also be present executives and engineers from the factories as well as representatives from other district and branch offices that serve the oil fields.

Products to be shown in outdoor spaces include tractors, power units, winch equipment, motors, texrope drives, centrifugal pumps, mud screens and a variety of electric-power equipment. These cover products from Allis-Chalmers two main divisions, namely tractor division and general machinery division, as well as Allis-Chalmers tractor-engine-powered oil-field equipment sold by Fred E. Cooper of Tulsa.

Two brand-new products on exhibition will be the company's new distribution transformer and its engine-driven centrifugal pumps.



New distribution transformer

The new distribution transformer embodies new features of design and construction. Cadmium-plated three-way terminals increase wiring flexibility over the former two-way terminals by allowing leads to enter the terminal from any of three directions. No special fittings are necessary because the heavy cadmium plating reduces corrosion and minimizes electrolytic action when used with either aluminum or copper conductors.

Installation can be made with ordinary tools carried by a lineman, and because of the construction of the three-way terminal, the tightening tool always travels in an up-and-down direction, preventing any accidental short circuit across the secondary terminals.

Tanks are of durable steel construction, tested under pressure. Side walls extend below the bottom to give protection in handling and prevent rusting. The tank surface is bonderized and covered with three coats of baked-on paint. This gives the surface an automobile finish with positive weather-resisting qualities.

Double conductor insulation is used in these new Allis-Chalmers distribution transformers to give added dielectric strength and greater physical separation of turns. Bushings are coordinated and made of the finest-grade wet-process porcelain with extra wall thickness for high mechanical strength.

To provide independently powered pumps for drainage, irrigation, gravel and coal-washing plants, construction jobs, and similar applications, the company has introduced a line of centrifugal pumps driven by gasoline-power units. Power units in five sizes (18 to 110 hp.) assure economy in operation with a choice of fuels.

Hightlight of the exhibit in the west half of Block S will be three sizes of the new tractors powered by the General Motors two-cycle diesel engine. Heading the lineup is the world's fastest and most powerful tractor, the HD-14, of 108 drawbar hp. and speeds up to 7 m.p.h. The HD-14 will be equipped with a Tulsa winch. In addition to the HD-14, the HD-10—75 hp.—and the

a.C.f.

FULL AREA LUBRICATED PLUG VALVES

125 to 250 pound pressure Full Area—Straightway Lubricated Valves—Semi-Steel; flanged ends; gear operated; sizes range 6 to 16 inches.

THERE is almost *no wear* in the ACF LUBRICATED PLUG VALVE. It is a *full area,* streamlined port-opening valve with the least possible number of parts—no packing gland nor auxiliary packing required. It is perfectly lubricated against wear and abrasion, with stick or bulk lubricant sealed under pressure. Prove these advantages—put several ACF Lubricated Plug Valves in *your* service. There is a full range of types and sizes at your nearest Mid-Continent Supply Co. branch.

SPECIAL FEATURES

FULL AREA—The port-opening, with full pipe area, provides unrestricted flow and full pressure through lines.

QUICK OPERATING—Turns easily and requires only a quarter turn from open to closed; can be installed in any position; fits into the smallest possible space.

CYLINDRICAL FLOATING PLUG—Efficient contact with line seat and head sealing surface made through resilient pressure of the lubricant. Will not stick nor wear.

NO EXPOSED SEATING SURFACES—In the open position ACF valves have no seating surfaces exposed to the wear of the fluid. In the closed or open position all seating or rubbing surfaces are constantly and progressively supplied with a protective coating lubricant.

EASY TO REPAIR IN THE LINE—Bottom baseplate permits dropping out plug without breaking pipe connection.

. . . . . FOR . . . . . .

GASOLINE, OIL, WATER, AIR, GAS, VACUUM, STEAM BOILER BLOW-OFF, CHEMICALS, CAUSTIC SOLUTIONS AND OTHER FLUIDS. Furnished in aluminum, bronze and other alloys to meet special needs.

125 to 500 pound pressure Full Area—Straightway Lubricated Valves—Semi-Steel; screwed or flanged ends; wrench operated; sizes range ½ to 12 inches.

Made and Guaranteed by

AMERICAN CAR & FOUNDRY CO.

Exclusively Distributed in

Texas (except Panhandle), New Mexico, Louisiana, Arkansas, Mississippi and Alabama (partial) by

MID-CONTINENT SUPPLY CO.

SEE MID-CONTINENT SUPPLY CO.

LOOK FOR THE BLUE NEON DERRICK!

H-D7—54 hp.—with auxiliary equipment will be on display.

Of great interest to the oil industry will be the new W-Patrol, a low-priced general-purpose motor grader suitable for ditching, grading and maintaining oil-field roads.

Fred E. Cooper
Tulsa, Okla.

Allis-Chalmers Manufacturing Co. Exhibit
Blocks "A," "B" and "D"

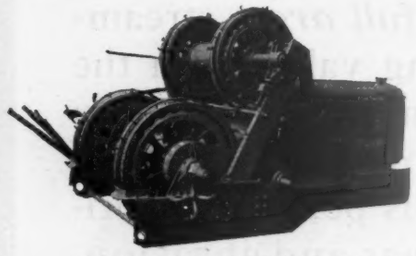
In attendance

FRED E. COOPER	O. J. WORK
A. G. BAILEY	C. O. WORK
H. B. BLOXOM	R. A. TEEGARDEN
R. A. CLAPP	LLOYD SIMPSON
J. T. DANIEL	E. E. EVERSON
JAMES DENNIS	E. H. COCHRAN
C. L. ELLIOTT	GERALD DIXON
JOHN FLANAGAN	C. D. HOUSER
LOUIS GASCHE	J. S. PROVINCE
A. T. JACOBS	GUY REED
H. R. KRAMP	GEORGE PLANT
R. R. KIRKPATRICK	KENNETH TATE
H. R. MOON	KENNETH FLETT
F. W. MURPHY	W. H. ALLEN
C. F. NELSON	W. C. SIMPSON
E. H. SMITH	L. A. WILSEY
B. R. WIGGINS	GLEN L. WIGTON

E. L. KIRKPATRICK, of Allis-Chalmers Manufacturing Co., Wichita, Kans.

ERNEST FRANKS and E. ABRAMSON, of Allis-Chalmers Manufacturing Co., Milwaukee, Wis.

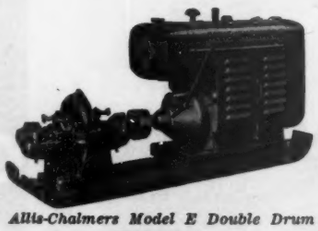
The following equipment will be displayed: Model E double-drum tractor with mast and spudding equipment; Model E single-drum tractor with seat controls;



Model E Double Drum Skid Winch

Model UM double-drum tractor with standard mast; Model UM standard single-drum tractor; Model UM single-drum tractor with cab and special wheel and tire equipment; Model W single-drum tractor; Model L double-drum skid with spudding equipment and rotary drive; Model EL double-drum skid; Model E, 48-in. single-drum skid; Model UM, 36-in. single-drum skid; Model W skid; Model L power unit; Model E power unit; Model U power unit; Model W power unit; Model B power unit, and Model B power unit with centrifugal pump.

Standard front drum 48 in. between flanges with 34-in. brakes, brake surface area 1,282 sq. in. Cooper, patented, air-cooled type. Drum capacity 6,350 ft. of ¾-in. line. Eight line speeds from 51 to 1,074 ft. per minute. Rear drum 40 in. between flanges with 34-in. brakes, brake surface area 1,282 sq. in. Cooper patented air-cooled type. Drum capacity 5,444 ft. of ¾-in. line. Four line speeds from 132 to 560 ft. per minute.



Allis-Chalmers Model E Double Drum Skid Winch

Heavy-duty tractor-type transmission with four speeds forward and one reverse.

Engine, Allis-Chalmers four cylinders, with 5¼-in. bore and 6½-in. stroke. 375-ft.-lb. torque. 30-gal. fuel tank. Built-in governor has variable speed control from foot accelerator. Operating range 500 to 1,200 r.p.m. Equipped with oil filter and air cleaner. Cooling system circulates 71 gal. of water per minute at governed operating speed of engine.

Alsop Engineering Corp.
Millidale, Conn.

78 Scientific and Technical Building

In attendance

SAMUEL ALSOP JAMES J. O'SHEA
CHARLES CROWLEY

Showing portable mixers, large side agitations, oil and liquid filters.

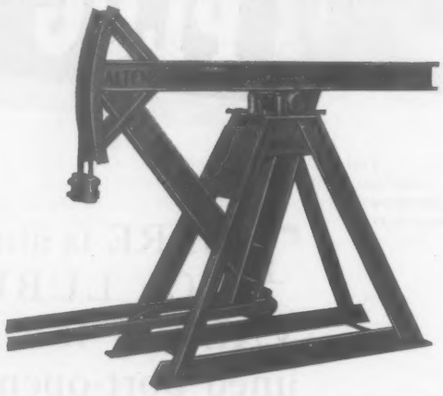
Alten's Foundry & Machine Works
Lancaster, Ohio

Block 7

In attendance

HENRY A. WINLAND E. G. SWEENEY
CHARLES L. SPILMAN MERL R. RUFF
C. R. (BOB) STAHL A. C. MUELLER
DALTON C. BERGAN

Exhibit will consist of the Type A-50-TC, A-80-TC pumping units, gear-reduction unit, underpull pumping jacks, stuffing boxes, stop cocks, Essex lock cocks, cas-



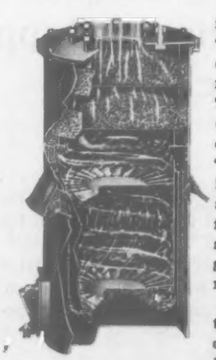
ing heads, check valves, flow catchers, and paraffin scrapers or sucker-rod guides. The A-80-TC pumping unit is assembled with an underpull attachment and connected with a pull-rod line to the company's A-50-C underpull pumping jacks. This complete assembly will be operating at approximately 12 s.p.m. Both jack and unit will be equipped with a regular well hookup of polished rod, stuffing box, casing heads, stop cocks, check valves, etc.

The underpull pumping jack illustrated is heavily designed for long-life service. The entire jack is fabricated from structural steel by electric welding. The polished-rod grip is provided with a machined hole which insures a perfect grip on the rod. All bearings are machined cast iron and provided with oil seals.

American Air Filter Co., Inc.
Louisville, Ky.

83 Texas Building

Exhibit will consist of two models of Cycoil oil-bath air cleaners, a multipanel automatic, self-cleaning air filter, and washable unit type air filters.



New equipment exhibited for the first time is the Type "W" Cycoil oil-bath air cleaner illustrated. A working model will be on display. The Type "W" cleaner operates on exactly the same principle as the original Type "Z" Cycoil cleaner introduced in 1937, but has considerably less resistance to air flow. It is particularly well suited to the protection of gas engines sensitive to air restriction.

Both the Type "Z" and the Type "W" Cycoil cleaners are so designed that the incoming air stream picks up a large quantity of oil and passes through a scrubbing chamber where air and oil are thoroughly mixed. By this action a high percentage of the dust content of the air is trapped in the oil, most of which is thrown out by centrifugal action before the air stream enters the filter cell. This materially reduces the dust load which the filter cell is required to handle, and insures high overall cleaning efficiency as well as continued self-cleaning action. This feature is particularly desirable during dust storms when cleaners are required to handle a high dust concentration.

American Bosch Corporation
Springfield, Mass.

55 and 56 Texas Building

In attendance

A. C. ALTREE, sales manager, western division
CHARLES T. COLLINS, sales engineer
F. J. MACKEY, district manager
IRWIN HADLAND, district manager

Exhibiting various types of magnetos and fuel-injection equipment for diesel engines including sectionalized models which show construction details. A unique piece of demonstrating apparatus will enable visitors to check the improved performance of a current-model magneto against an old-style unit.

Another demonstrating device with a sectionalized diesel-injection pump and different types of spray nozzles will be in actual operation with provision for visitors to regulate the output of the injection system as though operating the throttle on an actual diesel engine.

Heavy-duty voltage-regulated generators for trucks and tractors will also be exhibited as well as the American Bosch Neverstall electric windshield wiper.

The American Brass Co.
Waterbury, Conn.

126-127 Texas Building

In attendance

H. G. WALLIS E. B. BROWN
GORDON HACKETT W. H. DOWD
MARTIN BRANDTBERG

Exhibit will feature welding demonstrations of both gas and electric-arc methods using Anaconda rods. E. B. Brown and Martin Brandtberg will conduct the demonstrations. Other sections of the welding display will show Anaconda welding rods, and welded parts and equipment of Everdur and copper as well as repair welds on cast-iron parts made with Tobin bronze.

The condenser-tube exhibit will show all standard Anaconda condenser-tube alloys and will feature supernickel and admiralty tubes, as well as supernickel and Muntz metal tube sheets.

There will be supplementary displays for Everdur bolts, nuts and screws and miscellaneous Everdur equipment; large diameter copper tubes, and a 3,500-ft. coil of capillary tubing with an outside diameter of 0.075 in. and an inside diameter of 0.025 in. The coil, weighing 55 lb., is produced in one solid, unbroken length by special tube-rolling equipment developed by the French small-tube branch of the company.

American Can Company
Chicago, Ill.

45-60 Kansas Building

In attendance

M. J. EBERHART	FRED HALL
ELMER NALL	TOM KENNEDY
M. A. WEST	ED CONNELL

Booth will contain no machinery or cans of any sort, but will consist primarily of a place to rest, fitted with comfortable lounging furniture. The background will consist of two dioramas, depicting the oil industry, as well as photographs of our factories and machinery installations. We welcome all visitors to call at our booth and rest their weary bones, as they all have a lot of ground to cover during visits to the exposition.

American Car and Foundry Company
(Valve Division)
New York

156 Oklahoma Building

In attendance

W. C. MOONEY W. R. KOTTSIEPER

Exhibiting A.C.F. full area lubricated plug valves, for gasoline, oil, water, air, gas vacuum, steam boiler blow-off, chemicals, caustic solutions, and other fluids.

American Chain & Cable Co., Inc.
Bridgeport, Conn.

157, 158, 173, 174, 175, 176 Oklahoma Building

Material displayed in each booth and the names of

For Lower Installed Costs

SAY "NAYLOR"

LINE PIPE AND THREADED SURFACE CASING

NO OTHER PIPE LIKE THIS

There's no comparison between Naylor and other light-weight pipe because only Naylor gives you Lockseam Spiralweld performance. This exclusive construction provides a leak-tight pipe that is stronger, more flexible and safer . . ideally suited for vacuum lines or lines eventually to be operated under vacuum. The Lockseam Spiralweld absorbs shock loads, expansion and contraction stresses and strains through this unique construction. Light weight, accurate diameter and concentric ends speed up handling and assembly . . cut installed cost. Sizes from 4" to 30" in diameter. All types of connections. Write Mid-Continent Supply Company for Catalog No. 37.

EXTRA PERFORMANCE IN SURFACE CASING

You get PLUS performance from Naylor's Lockseam Spiralweld Surface Casing with threaded joints. The spiral helps centralize the casing in the hole. Provides the necessary "breathing space" around the casing. Helps prevent channeling. Assures a better cementing job. No joint welding required. No field welding equipment necessary. Light weight, uniform lengths and accurate threading to A. P. I. Standards simplify handling and setting. This adds up to extra performance at lower installed cost. Sizes: 13⅜" O. D., 16" O. D., 18⅝" O. D., 20" O. D. and 21½" O. D. Ask Mid-Continent Supply Company for full details.

NAYLOR PIPE COMPANY

1232 EAST 92ND STREET

CHICAGO, ILLINOIS

SEE MID-CONTINENT SUPPLY CO

LOOK FOR THE BLUE NEON DERRICK

the divisions occupying each particular space follow:

Page Steel & Wire Division, Monessen, Pa.
Booth 157
In attendance
E. J. FLOOD B. W. COLLINS, JR.

Various types of welding wires will be shown. Also a display of chain-link fence and fittings.

American Cable Division, Wilkes-Barre, Pa.
Booth 158
In attendance
J. BROOKS G. MOORE
P. CLENDENEN R. D. McNUTT

Various grades of wire rope used in the oil fields will be displayed, featuring the company's Tru-Lay Preformed wire rope.

American Chain Division, York, Pa.
Booth 173
In attendance
J. B. TAYLOR C. A. GOLDSTROHM

Welded and weldless chain items displayed, featuring the new Endweldur chain, a new-type chain, made exclusively by the American Chain Division.

Wright Manufacturing Division, York, Pa.
Booth 173
In attendance
D. SMITH

Electric hoists and various types of hand hoists displayed.

Hazard Wire Rope Division, Wilkes-Barre, Pa.
Booth 174
In attendance
W. W. RUNKLE E. C. TROUTMAN
B. N. BURNS J. R. McCREA
C. A. LITTLE

Typical wire ropes displayed, featuring the Lay-Set Preformed wire rope.

Reading-Pratt & Cady Division, Bridgeport, Conn.
Booths 175-176
In attendance
J. J. REED J. A. BYNUM
T. R. FOSTER L. W. HOPKINS
J. P. FERGUSON

Showing a complete line of bronze, iron and steel valves, along with a representative group of bar-stock valves.

American Iron & Machine Works
Oklahoma City, Okla.
51-52 Oklahoma Building and Block T

In attendance
EARL W. MILLER, vice president
JOHN R. RILEY, sales manager in charge of booth
R. E. CRAINE, district manager, Kansas
J. M. TAYLOR, sales representative, Kansas
G. C. (RED) ROSS, salesman
J. J. FITZPATRICK, salesman
M. G. McCOOL, district manager, West Texas
E. W. HERRING, manager, Harvey, La.
P. K. RIDGE, salesman
W. L. MARTIN, sales representative, Illinois

Among the products to be exhibited is the newly improved control head tubing packer which, the company reports, is receiving an enthusiastic ovation from operators wherever used.

The outstanding features of this product, it is stated, include new simplified design and construction, embodying the hook-wall principle; perfect seal in any weight casing; can be pulled after many years of service without tubing being stuck; cup or sealing is a composition of expanding duck and Neoprene rubber; allows small amount of gas to be cut into the tubing at the bottom of the packer, which aerates the fluid column, causing a weak well to flow.

This packer, according to manufacturers, can be used successfully on a cement-squeeze job.

American-LaFrance-Foamite Corporation
Elmira, N. Y.
102-103 Texas Building

In attendance
D. D. FITZGERALD, district manager, Houston
J. A. HARTE, Tulsa representative
R. M. SPURLOCK, Shreveport representative
E. B. REYNOLDS, Oklahoma City representative
L. E. BUSH, Oklahoma City representative
S. McKENNY, Houston office

Exhibiting a complete line of fire-extinguishing equipment.

For the first time there will be on display 2½ gal. Foam extinguishers tested to a pressure of 500 lb., carrying the approval of the Underwriters' Laboratories. They are of monotype shell construction, each drawn from a single sheet of high-tensile-strength,

corrosion-resisting alloy, eliminating the riveted, longitudinal seam of the ordinary fabricated fire extinguisher. This construction results in an increase in strength of 30 per cent over the fabricated type, and contributes a correspondingly greater factor of safety.

Another item featured is the Poweron nozzle, designed for general use on fire-hose lines and discharging large quantities of water in a form especially effective for fighting fires with safety in live electrical equipment. It has been tested and approved by Underwriters' Laboratories for use on circuits carrying current at voltages as high as 250,000. The Factory Mutual Laboratories approve this nozzle for extinguishing fires in flammable liquids with flash points as low as that of kerosene, and under favorable conditions, for fires in more volatile flammable liquids.

American Machine & Metals, Inc.
DeBothezat Ventilating Equipment Division
East Moline, Ill.
48 Kansas Building

In attendance
A. M. HARP, central sales manager in charge

Exhibiting air-moving equipment, especially designed for use in oil-producing fields. The products displayed include:

Six-foot giant fan units.—Many of these fans are in use in the oil fields on cooling towers and heat exchangers for recycling and repressuring plants. The company states that the highly efficient DeBothezat axial-flow giant fan is ruggedly built, moves more air per horsepower at lower speeds, and has a nonoverloading power characteristic.

"Power-Flow" roof ventilators.—These ventilators have a guaranteed rating and provide positive controlled ventilation, independent of variable weather factors. The roof ventilator is equipped with a "designed in" high-efficiency axial-flow pressure fan and has no moving parts to be caught and operated by the wind. It is absolutely weatherproof and is of low height, compact, and rigid construction.

The DeBothezat Bifurcator.—This is a revolutionary unit for handling high-temperature, corrosive or toxic fumes. It consists of an axial-flow fan, mounted in a patented housing, with the motor isolated from fumes in a separate, through-ventilated chamber. The Bifurcator is inexpensive to install as no special supports are necessary.

DeBothezat axial-flow fans.—These units offer maximum savings in space, weight, and power; operate efficiently against resistance pressure and have a nonoverloading power characteristic; move more air per fan diameter at slower speeds with reduced noise; have guaranteed capacities, and are available in a wide range of selections, insuring the correct fan to meet each condition.

American Manufacturing Co. of Texas
Fort Worth, Tex.
216-235 Oklahoma Building

American Optical Co.
Southbridge, Mass.
24-25-26 Oklahoma Building

In attendance
W. G. ENGEL H. G. BOURNE
T. P. WELSH

Will exhibit samples of its line of safety goggles and helmets, respirators, safety clothing and accessories. Complete industrial protection from head to ankles is

provided by this very complete and versatile line of protective devices. Featured in the display is a gigantic model of the concern's Super Duralite safety goggle designed for protection against flying objects coming from any direction. Featured also are the recently announced R1000 respirators and the new and complete line of safety clothing announced a short time ago.

American Roller Bearing Co.
Pittsburgh, Pa.
87-88 Oklahoma Building

In attendance
C. F. SUCCOP, president
LARRY SUCCOP, sales engineer
CARL L. KNAAK, sales engineer
EDWARD D. MALTBY, Pacific Coast representative

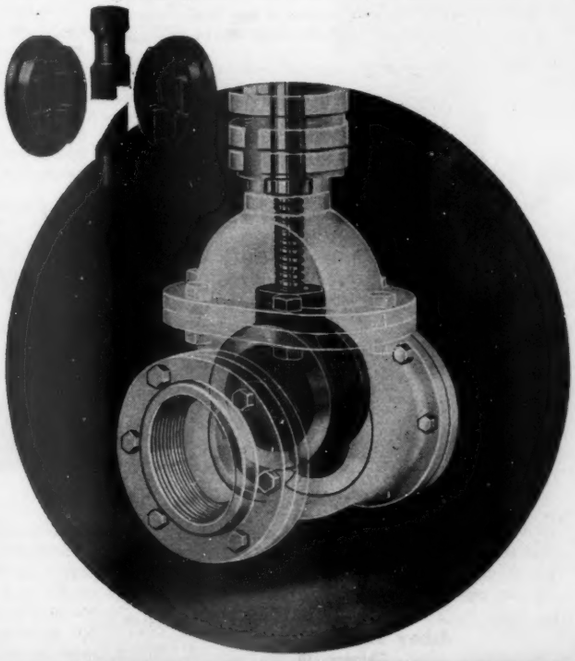
Showing several recently developed special types of bearings, along with the company's full line of standard medium-duty, heavy-duty, and superheavy bearings used in oil-field equipment. These newer products will include radial bearings of the grooved inner and outer-race types. Special bearings of light-wall

Alert Oil Field Engineers SPECIFY LUDLOW VALVES

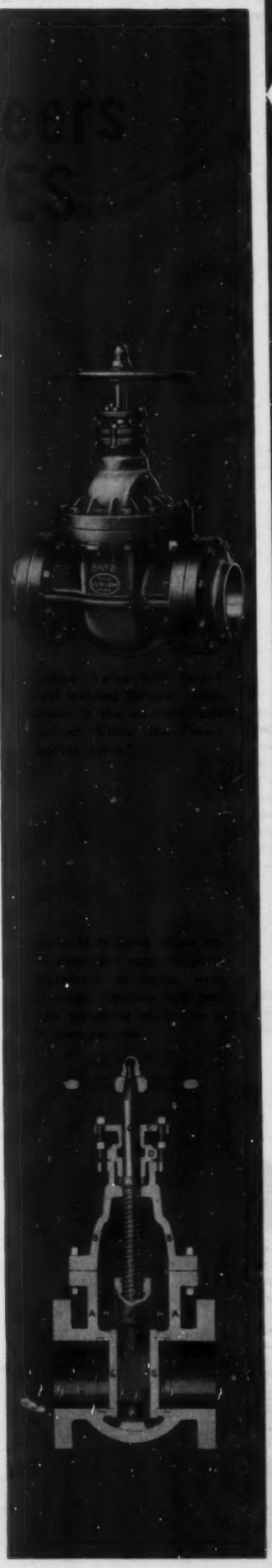
Four stand-out features of LUDLOW Valves give them leadership in the oil fields:

- SMOOTH, POSITIVE OPERATION. Gates positioned *directly* opposite ports *before* wedging, and entirely unwedged *before* being raised.
- POSITIVE CLOSURE—even after years of service in the open position; 30° wedges; gates *self-adjusting* to seats.
- SELF-CLEANING. Seat rings cleaned *throughout entire stroke. No internal guides* to cause foul-up.
- READY REPLACEMENT OF PARTS. Simple construction to ample tolerances, permitting ready replacement of parts.

Only the parallel seat, double wedge type slide gate valve provides *all* these essential benefits. This principle, developed and perfected by Ludlow, has been universally accepted and preferred for oil, gas, and water lines since 1866.



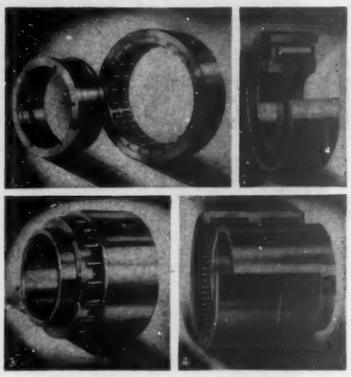
The LUDLOW VALVE MFG·CO·INC· TROY·N·Y· SINCE 1866



SEE MID-CONTINENT SUPPLY CO.

LOOK FOR THE BLUE NEON DERRICK

cross-sections, and larger radial-constructed sheaving bearings for crown and traveling blocks are included



(1) American double-roll radial bearing. (2) American single-roll radial bearing. (3) American heavy-duty bearing. (4) American full-roller bearing

in the exhibit, and also the original channeled outer-race full roller bearing of both single and double-width design.

The American Rolling Mill Co.
Middletown, Ohio

70-71 Oklahoma Building

In attendance

S. R. IVES, manager, pipe and formed products division, Middletown, Ohio
R. C. BEAM, manager, spiral welded pipe department, Middletown, Ohio
R. E. WALKER, district representative, Tulsa
T. J. ROBINSON, district representative, Texas

Exhibit features a pictorial inspection trip through pipe mill and oil field. Enlarged photographs will be used to illustrate the many time and money-saving advantages of Armco spiral-welded pipe for gas-gathering lines and casing.

First, each step in the manufacturing of Armco pipe will be shown. Then, moving from mill to field, other photographs will illustrate Armco line pipe and casing in service. Samples of Armco spiral-welded pipe will also be on display.

American Sand-Banum Co., Inc.
New York

101 Texas Building

In attendance

FRANK J. WELU

Exhibiting Sand-Banum Standard, a pure colloidal concentration which is said to eliminate all formation of scale and corrosion in boilers. The company says it

does not contain any acid or caustic material and is harmless to all equipment and to persons applying it; it comes ready for use in 16-oz. cans, and a few ounces from one to four times per month is all that is required; its action is mechanical rather than chemical; it holds all water impurities in suspension and thus prevents their crystallizing into scale; its simplicity, safety and certainty are of particular value in the oil industry as it gives the same service regardless of the operating conditions or the nature of the water used.

Sand-Banum Blue Seal emulsion, it is said, does the same for the cooling systems of internal-combustion engines that the standard does for boilers; not only does its use eliminate and prevent scale, corrosion and rust, but it prevents cracking of cylinder heads, leaks and overheating.

Sand-Banum special, in tablet form, is used to dissolve and remove old scale and rust from radiator-cooling systems of diesels, automobiles, trucks, buses, tractors, etc.; it also prevents formation of new scale and rust.

Ames Baldwin Wyoming Co.
Parkersburg, W. Va.

3 California Building

Appleton Electric Company
Chicago, Ill.

63-64 Kansas Building

In attendance

F. S. DONAHUE, sales engineer
HOLLIS JOHNSON, sales engineer
H. T. WHITE, sales engineer
N. A. TORNBLOM, chief engineer
M. J. WHITFIELD, general sales manager

This company, manufacturers of all types of conduit fittings, has a display of explosionproof Unilets for for use in hazardous locations, consisting of lighting

fixtures, panelboards, pilot lights, plugs and receptacles, junction Unilets, circuit-breaker Unilets, motor-starting Unilets of various types, also explosionproof automatic take-up Reelites.

The lighting fixtures embody some very important features which permit easy and rapid installation. The threaded sleeve makes for ease in wiring and inspection, in addition to sealing the wiring chamber.

The Seal-Line of explosionproof switch Unilets, circuit-breaking switch Unilets, motor-starting switch Unilets are a combination of switch housing and sealing Unilets. The construction of these fittings eliminates the need for sealing fittings, as these Unilets consist of three distinct chambers, and the switch chamber in the center, which is entirely isolated from the upper and lower splicing chamber in approved explosionproof method.

The explosionproof Reelite is especially designed for use in hazardous locations and is particularly adaptable for use in connection with an explosionproof hand lamp for making inspections in and around hazardous locations.

Armstrong Machine Works
Three Rivers, Mich.

Booths 94-95 Texas Building

In attendance

O. E. ULRICH GEORGE B. ALLAN

Featured is a glass working model of the Armstrong foul-gas purger, as well as one of the Armstrong inverted bucket steam trap. In addition to the glass

Foul-gas purger

models there will be sectional models and actual samples of the steam and gas traps used by the refining, natural-gas, gas pipe line and drilling branches of the oil and gas industry.

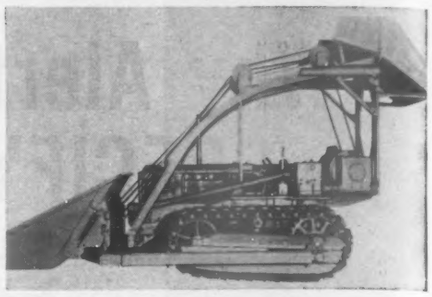
Athey Truss Wheel Co.
Chicago, Ill.

Blocks C and E

Mounted on a Caterpillar diesel D4 tractor, a new piece of loading equipment, known as the Athey MobiLoader, will be exhibited. Product of 2 years of development, it is a utility tool adapted to a wide variety of uses in oil-field service.

The MobiLoader to be displayed has a 1½-yd. bucket which dumps to the rear without the necessity of turning or maneuvering the tractor. It can also be arranged for front-end dumping. Rear dumping is controlled by a single lever and a separate lever is provided to trip the bucket when dumping forward.

The MobiLoader will be available for all new Caterpillar diesel tractors or similar models of Caterpillar tractors now in use. No changes are required in the tractor to mount this tool.



Athey MobiLoader

Atlas Supply Co.
Muskogee, Okla.

Block H, Arcade Way

In attendance

J. H. McDONALD J. R. BROOKS
R. E. HOWE R. M. CARTER
E. L. CHAVELLIER H. U. EVERETT
R. L. GIBBINS B. E. GOLD
S. C. MAPLES F. E. MAXWELL
F. T. MITCHELL J. G. PARK
ED ROBERTSON W. E. STITZER
E. TYLER DAVIS, Wheeling Steel Corp.
ARTHUR CLIFFORD, SR., Weber Engine Co.
ARTHUR A. CLIFFORD, Weber Engine Co.
JACK CLIFFORD, Weber Engine Co.
S. B. GOLD, Weber Engine Co.

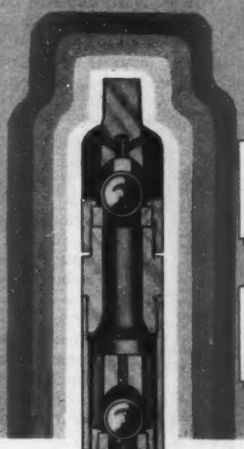
Exhibiting Atlas pumping units, Weber vertical diesel and gas engines, Weber Gold silencers, driftmeter engine coolers, Kohler light plants, Meyer's house water systems, Jones-Staggs intermitters, Steelcrete expanded metal, Belmont packings, products of U. S. Rubber Co. and Boston Woven Hose & Rubber Co., American Cable Co., wire rope, Wheeling steel pipe and specialties, Luber-Finer oil filters, Quigley refractories, and Tnemec protective coatings.

New products.—Three new Atlas pumping units with roller-chain reducers, rated at 6 hp., 9.6 hp., and 11.3 hp., will be shown in operation. Noteworthy because of the compact and distinctive design of the speed reducers, two of which will be equipped with transparent covers and interior lighting.

Atlas No. 1002 pumping unit

The two latest additions to Weber Engine Co.'s line of medium-speed, two-cycle, vertical engines will be shown for the first time. The Type "4MC" engine on display is a four-cylinder, full-diesel engine, convertible to gas; 7½-in. bore by 9-in. stroke, and rated 100 hp. It follows the supercharging, step-piston design used so successfully on the two and three-cylinder Type "MC" Weber engines which have been in production for several years. The engine will also be available with 8¼-in.-bore cylinders and rated at 120 hp. The four-cylinder engines are especially designed for use with geared pumping powers, central generating plants, compressors, and pipe-line pumps, and can be furnished with or without power takeoff clutches.

The Weber Type "H" gas engine exhibited is a single-cylinder engine, 4⅞-in. bore by 6½-in. stroke, rated 8-10 hp.; complete with radiator cooling system,



PACIFIC *presents the new* METALLO-SEAL PUMP

CHECK THESE METALLO-SEAL ADVANTAGES

LOW FIRST-COST

●

PACIFIC MOLLOY-XX HARD-PLUNGER

●

MIRROR FINISHED PRECISION TUBE

●

CLOSE METAL-TO-METAL FIT

●

MAXIMUM PASSAGES

●

UNRESTRICTED FLUID FLOW

●

ADAPTABLE TO ANY API HOLD DOWN

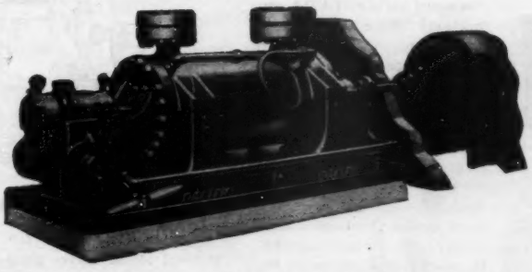
A LOW FIRST-COST PUMP, ENGINEERED ON THE PACIFIC PRINCIPLE OF MAXIMUM PASSAGES FOR UNRESTRICTED FLUID FLOW

PACIFIC Metallo-Seal Pump utilizes the service-proven PACIFIC Moloy Liner metal for an effective seal as a plunger in a specially finished precision tube. PACIFIC Moloy Plungers have proved their anti-frictional and wear-resistant qualities for years. Their resistance to gauling makes possible a closer fit which reduces fluid slippage and results in higher pump efficiency than the low first-cost would indicate.

Illustrated is the Rod-Traveling Type with 3-cup Hold Down. Any API Hold Down or Locking means may be employed.

PACIFIC PUMPS ON DISPLAY

See PACIFIC PUMPS in the following exhibits: MID-CONTINENT PUMP SUPPLY CO., Booths 229-230 Oklahoma Bldg. MID-CONTINENT SUPPLY CO. BLDG., Block 3 outside.



PACIFIC *STREAMLINED* DEEP WELL OIL PUMPS

Built to increase pumping efficiency by minimizing friction, reducing "cutting" of oil and eliminating turbulences, PACIFIC PUMPS offer the oil well operator many combinations to meet every well condition. Bulletins giving complete specifications and combinations of PACIFIC PUMPS are available without cost. Copies will be furnished on request.

PACIFIC HOT OIL PUMPS

PACIFIC HOT OIL PUMP is a multi-stage horizontal, double-case, centrifugal Pump — furnished with a forged steel shell, end covers and nozzles. Designed for temperatures from sub-zero up to 850° F. with differential pressures up to 2500 lbs. and capacities from 50 G.P.M. Adaptable for low or high suction pressure conditions. Pacific High Pressure Hot Oil Pumps are operating economically in refineries throughout the world. They are acknowledged by refinery engineers as the most efficient units for handling both heavy and light liquids.

SEND FOR BULLETINS DESCRIBING PACIFIC PUMPS

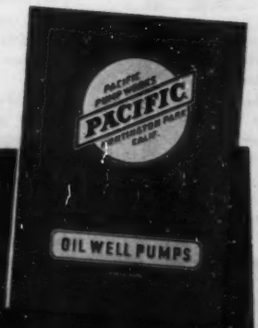
PACIFIC PUMP WORKS

5715 Bicket St. Huntington Park, California

Export Office: 255 Broadway, New York City

Distributors:

MID-CONTINENT PUMP SUPPLY CO. MID-CONTINENT SUPPLY CO.

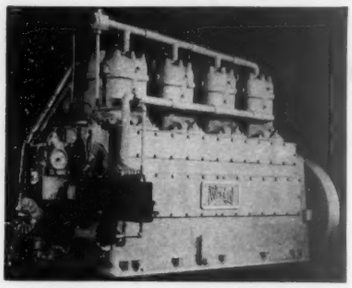


PACIFIC PUMPS

SEE MID-CONTINENT SUPPLY CO

LOOK FOR THE BLUE NEON DERRICK

power takeoff clutch, and roller-bearing crankshaft. The engine has been designed to meet the demand for a heavy-duty, oil-field pumping engine for the shallower wells.



Weber Type 4 MC diesel engine

Steelcrete.—An expanded metal-mesh product, manufactured by Consolidated Expanded Metal Companies, has been arranged in a novel display to demonstrate the varied uses of the material. A balcony, whose floor, railings, and steps are made of Steelcrete, has been added. All machinery guards have been fabricated from this material, adding emphasis to safety.

Axelson Manufacturing Co.

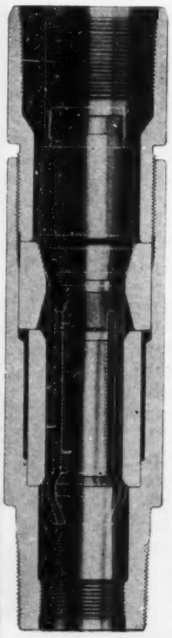
Los Angeles, Calif.

Frick-Reid Building

In attendance

J. C. AXELSON, president
D. F. AXELSON, vice president
D. M. HAMMETT, vice president, manager of Mid-Continent division
J. R. WALKER, assistant manager, Mid-Continent division

A new addition to the company's line is the casing pump and packer assembly, a patented two-unit arrangement that uses the company's standard pumps. Standard parts and A.P.I. connections have been used throughout.



The company's anchor holddown shoe (illustrated) was developed to avoid the possibility of a pump anchor leaking or becoming stuck in the shoe due to corrosion. The seat and locking spacer are made of stainless steel, hardened and ground, and each is reversible. Proper assembly is assured at all times as the shoe has a stepped bore, making it impossible to assemble the parts in incorrect relation to each other. The outside diameter of the assembly does not exceed the diameter of a tubing coupling of the size tubing on which the unit is run. The upper end is provided with a clamping collar with box thread, either plain or upset. The lower end has male tubing thread, likewise plain or upset, with an inner thread of smaller diameter to receive the anchor pipe.

The entire unit is ruggedly constructed throughout, with ample seating and locking faces which, being hardened, will withstand severe service for a long period without the necessity for replacement.

The company's top-lock holddown allows a stationary-type rod pump to be completely suspended from its upper end. This obviates the possibility of sand packing between the pump and tubing, and facilitates removal of the pump, while providing positive anchorage by means of the heat-treated spring-prong lock.

The company's float-control gas anchor has as its principal feature a float tube so arranged that when a well pumps off, the float becomes empty in proportion to the lack of fluid present, and rises in direct ratio thereto.

The company's on-or-off attachment for connecting or disconnecting the sucker rods at the pump provides insurance against stripping jobs in any installation. Coupling and uncoupling may be performed as often as desired without withdrawing the pump or plunger assembly from the well.

Bailey Meter Company

Cleveland, Ohio

Booth 47

Scientific and Technical Building

In attendance

C. E. ALBERT, western district sales manager.

Exhibiting meters and controllers for measuring and controlling flow, pressure, temperature, liquid level, and other factors encountered in petroleum refining. Numerous diagrams will be displayed to illustrate the methods used in coordinating equipment for the automatic control of refining operations.

Baird Manufacturing Co.

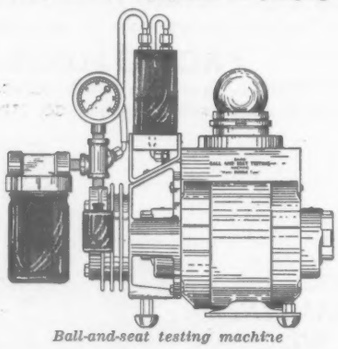
Tulsa, Okla.

8 Texas Drive

In attendance

O. B. LEONARD — J. B. COOK
L. ROBINSON — C. KENNETH SMULLEN
TED W. McCUISTON — L. L. PAUL
C. M. WILLIAMS — L. C. HOLLOWAY
L. D. BAIRD — W. W. KINNISON
R. B. HAMMOND

Products displayed include balls and seats, drops and seats, pump valves, sucker-rod sockets, safety-wheel wrenches for sucker-rod twisting, rig iron crank arm hole reboring machines, Expanso wrist pins, wrist-pin pullers, taps and dies for cleaning and rechasing sucker-rod pin and box threads, oversize standing valve pullers, clutch type, V-PAC stuffing boxes for polish rods, and new equipment for pumping leases.



Ball-and-seat testing machine

A mechanical means for testing the tightness of fluid-seal check valves used in oil-well pumps. When leakage occurs air bubbles rise in the water column to definitely show the inaccuracy of the fluid seal. This method is much more accurate than could be had from tests made by a straight vacuum pull as small leakage does not cause a sufficient needle movement in the unitized inch gage to be caught by sight reading.

Also, a tubing parachute intended to replace the conventional tubing catcher in pumping wells having a high fluid level in the casing; a valve-seat puller designed for the removing of seats out of the conventional pump body; ball snubber cages, including a bronze plunger in which a spring is housed to maintain continuous plunger contact with the ball; snubber drop and seat which replaces the ball and seat in the traveling or the standing valves equipped with snubber-type cages; and positive-lift traveling valve, upper-cage type, for installation in combination with any oil-well pump in wells to eliminate gas locks in the working barrel.

Baker Oil Tools, Inc.

Los Angeles, Calif.

99-100-101-102 Oklahoma Building

In attendance

T. SUTTER, general manager, Los Angeles
C. R. BURT, chief engineer, Los Angeles
C. E. WHITNEY, district manager, Houston
R. S. KAIL, petroleum engineer, Houston
P. V. McGIVERN, Tulsa
J. W. BURKHART, Oklahoma City
JOE CHASTAIN, Oklahoma City
J. T. COY, Oklahoma City
PAUL DAVID, Wichita Falls, Tex.
E. F. HANNON, Great Bend, Kans.
H. F. HARPER, Ada, Okla.
L. L. WATKINS, Wichita, Kans.

In addition to a display of shoes and collars comprising the complete line of Baker cement equipment for guiding, floating, and cementing operations, the exhibit will feature its cement wash down whirler float shoe and its new retainer production packer. Other equipment on display will include the Baker cement retainer, metal "Petal" baskets and hookups for cementing, rotary hydraulic expansion wall scraper, rotary hydraulic wall sampler, Bakwik drill-pipe float, and portable kelly and pipe straightener.

Retainer production packer

The regular cement wash-down whirler float shoe, it is pointed out, facilitates the running of casing into a hole where bridges or other formation obstructions may be encountered. In addition to providing floating of the casing it gives added assurance that the casing will reach bottom safely. The shoe is constructed with side ports and fluid passing through these ports is given a downward and slightly lateral direction of flow. This provides washing without harm to the walls of the hole and during cementing of the casing assures a complete encasement of the pipe by whirling the slurry around the casing as it passes upward.

Whirler float shoe

The new retainer production packer has been designed to pack off between two production horizons and produce them separately. It is furnished in three types—the packing head seal type, the continuous double-seal type and the continuous single-seal type—so as to meet specific conditions of production. One packer is used for segregating production from two zones and two packers for separating the production from three zones.

Baldwin-Duckworth

Division of Chain Belt Company

Springfield, Mass.

9 and 10 Texas Building

In attendance

F. J. WESCHLER, general manager
G. D. GILBERT, sales manager
HERMANN KLAUCKE, chief engineer
A. T. ARNOLD, advertising manager
GEORGE FIX, oil-field representative, Dallas, Tex.
GEORGE FIX, JR. — ERIC MOORE
PAUL EDKIN — KENNETH J. MILLS

Baldwin stresses its ability to supply a type of rotary-drilling chain for every field condition and displays Baldwin full flex, Baldwin superservice, Baldwin dual purpose, Baldwin master series of rotary drilling chains.

In addition, it shows a complete line of machine-finished roller chain built for oil-field service, as well as the Baldwin patented roller-chain flexible coupling.

Bantam Bearings Corporation

(Subsidiary Torrington Co., Torrington, Conn.)

South Bend, Ind.

49 and 50 California Building

In attendance

J. F. OEHLHOFFEN, assistant sales manager
C. A. BENSON, in charge of oil-field territories
F. D. CLARK, Cleveland
H. E. EWART, assistant chief engineer

Displaying a comprehensive selection of all the types of bearings which are manufactured for use in the oil-drilling and production industries. In addition exhibiting a rotary table, using one of the company's larger bearings and possibly other oil-field equipment.

DEPENDABLE EFFICIENT

Emsco 15½" x 8¼" x 20" Steam Pumps incorporate the fundamental principals that Emsco has proved in actual field service to be so successful. They are all steel construction throughout except the superior cast iron liners in the steam end. The Emsco pump, therefore, is approximately one-third lighter than conventional pumps of similar capacity. The greater strength and rigidity of steel assures longer life, with less wear and breakage than heretofore has been possible. These features, combined with several distinctly new design innovations, give Emsco Steam Pumps certain definite and exclusive advantages.

Emsco 7¼" x 12" Power Slush Pumps are of all steel construction, with fabricated power end and cast steel fluid end. Two basically important reasons are back of this design and construction — a tremendous saving in weight plus far greater strength than heretofore has been possible in this type of equipment. Also available in 7½" x 14" and 7¾" x 16" sizes, both of which incorporate the fundamental principles of higher horsepower capacity and lighter weight.

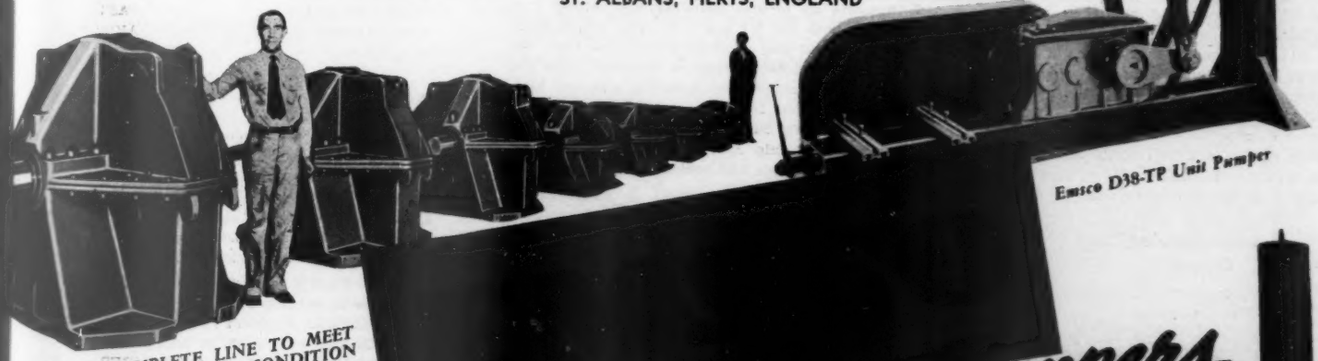
The complete line of Emsco Pumping Units are manufactured with the most up-to-date precision equipment available for the purpose. Emsco engineers, with many years experience in manufacturing oil field equipment and working closely with field operators, have developed a line of pumping units of proved design and efficiency to meet any pumping problem economically

Emsco 15½ x 8¼ x 20 Steam Slush Pump

EMSCO DERRICK & EQUIPMENT COMPANY

Manufacturing Plants At:

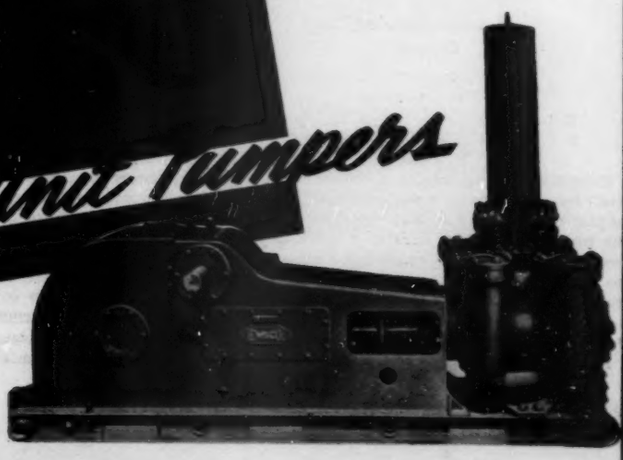
DALLAS, TEXAS — LOS ANGELES, CALIFORNIA — HOUSTON, TEXAS
ST. ALBANS, HERTS, ENGLAND



Emsco D38-TP Unit Pumper

A COMPLETE LINE TO MEET EVERY PUMPING CONDITION

Slush Pumps and Unit Pumpers



Emsco 7¼ x 12 Power Slush Pump

SEE MID-CONTINENT SUPPLY CO

LOOK FOR THE BLUE NEON DERRIC

Bearings displayed are: Bantam Quill bearings in various sizes—these are the newest type bearings which are being extensively used in oil pumping units, upper pitmans, center iron saddles, V-strap attachments for pumping extension wells, and also some of the rigid type polished-rod hangers and link-type hangers, as well.

There is also a good selection of the company's rotary-table bearings, including the large angular contact bearings, which are being used in other tables of various sizes, also journal and radial roller bearings for traveling blocks, and roller-thrust bearings for swivels, and a number of miscellaneous types of bearings of a wide range of sizes.

Baroid Sales Division of National Lead Co.
Los Angeles, Calif.

83-84; 127-128 Oklahoma Building and Block 3

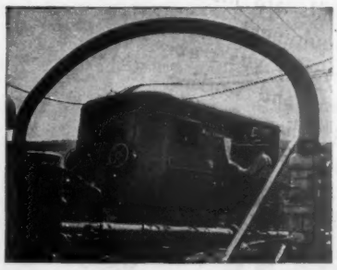
In attendance

GEORGE L. RATCLIFFE, general manager
W. L. HEATER, Pacific Coast district manager
D. A. SIKES, Mid-Continent district manager
H. H. FARNHAM, Gulf Coast district manager

R. W. WILSON	D. H. LARSEN
L. W. HUEBEL	E. C. MEYER
A. A. ROBERTS	A. C. SMITH
R. JOHNSTON	E. E. HUEBOTTER
H. A. BARTHELOW	J. M. BUGBEE
R. C. MARR	G. G. BLOXSOM
G. C. WAHLSTROM	J. LONG
N. T. RANDOLPH	G. H. MOORE

F. B. WILLIAMS

To most advantageously display the company's new well-logging service for the benefit of visitors, 400 sq. ft. of space has been taken, as well as 800 sq. ft. for an outside display in Block 3.



The well-logging service has attracted widespread attention because of its entirely different basic theory and the fact that continuous well logging is accomplished right at the time of drilling and without interruption of drilling operations.

The interior exhibit will display a well-logging instrument panel showing how the various analyses and correlations are obtained and instantly recorded, thereby affording a constant and up-to-the-minute check on drilling progress and subsurface conditions.

Also on display will be the results of many exhaustive tests on the company's drilling-mud products which include: Baroid, Aquagel, Colox, Stabilite, Smentox, Fibrotex, Zeogel, Baroco, and Aquagel-cement. The complete line of drilling-mud testing equipment will also be on display.

The outdoor exhibit will be entirely devoted to the well-logging service. A logging trailer used for this service, fitted with full equipment, will be displayed.

Bastian-Blessing Co.
Chicago, Ill.

36-37 Oklahoma Building

In attendance

E. L. MILLS	R. E. POETHIG
J. C. OWEN	N. E. JOHNSON

M. J. LA DUE

Exhibiting RegO welding and cutting equipment and RegO liquefied petroleum gas equipment. Actual steel-cutting demonstrations, using propane or butane as the fuel gas, will take place in a specially designed, fireproof, cutting booth which is an integral part of the exhibit. For the protection of all spectators, the large center window is made of special glass, similar to that used in cutting goggles, to prevent any eye injuries.

Pictured is a recently developed new style cutting tip for use with butane, propane, natural, manufactured, or coke-oven gases, which has made possible unusually clean, fast, economical cutting when using

these so-called low-heat value gases. A continuous demonstration of these new tips will be conducted daily.

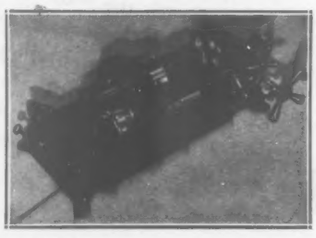
Beaver Pipe Tools, Inc.
Warren, Ohio

42-43 Oklahoma Building

In attendance

C. W. SMITH, oil-field representative, Dallas, Tex.
AVERY PHILLIS, Chicago district manager
E. R. BARKLEY, sales promotion manager

Exhibiting in addition to the full modernized line of its pipe tools, three new developments, within the past year. These are the Model B lightweight, low-priced portable pipe and bolt machine; the Model C power unit that makes pipe machines of tools from ⅛ to 8-in. and the new No. 71 series pipe and bolt threaders, for which more than 100 different kinds of dies are available to thread pipe and bolts of various kinds up to 1-in. The Model B pipe machine is a highly efficient unit having a complete range within the machine from ⅛ to 2-in. and by means of a drive shaft will operate geared cutters and threaders up to and including 8-in. Model C is available in both the C-1 and C-2 types, which differ only so Model C-2 may accommodate a pipe vise. No. 71 series pipe and bolt threaders, patented, have distinct advantages in tools for threading pipe and bolts up to and including 1-in. They are fully adjustable tools, using no loose bushings and design provides for perfect oiling and chip clearance—two advantages in producing good threads and prolonging die life.



Model B pipe and bolt machine

Beaumont Iron Works Co.
Beaumont, Tex.

Frick-Reid Building

In attendance

A. I. BRAINARD	E. J. ROACH
E. F. COOKE, JR.	ROBERT W. HILL
T. L. FULLER	N. G. NUTALL

Equipment displayed: Casing-nest assemblies with flanges for Series 400, Series 600, and Series 900; casing-nest assembly with Series 600 flanges, with tree assembled; casing-nest assemblies with Series 900 flanges with tree assembled; HX-33-05 tubing head, Series 600 flange; HX-100 tubing head, Series 900 flange; Px-104, Series 400 flange, PX-23 slip-type tubing head; PX-350 stripper-type tubing head; and PX-375, PX-286, PX-23SB, and PX-65 stripper-type tubing heads; stripper adapter; PX-155 tubing support; PX-435 pumping head; PX-450 pumping head; East Texas special casing head; HRP-25 slip-type casing head; various sizes and types of screw-end and flanged-end christmas-tree fittings; 30-in. tubing block; 36-in. tubing block; 48-in. tubing block; C-262 pedestal sheave; PM-60 pedestal sheave; NR-30 swivel-sheave block; NR-50 coring-sheave block with hanger.

Bethlehem Steel Co.
Bethlehem, Pa.

Bethlehem Supply Co.
Tulsa, Okla.

Bethlehem Building and outside space on Drake Drive

In attendance

Bethlehem Steel Co.

J. V. HONEYCUTT, assistant vice president, sales department
J. M. ELLIS, general manager of sales
E. A. BUXTON, manager of sales, pipe and tubes
C. R. ZIMMERMAN, salesman, pipe and tubes
L. C. TORRELL, sales engineer, wire rope and strand
B. C. McGREGOR, manager of sales, St. Louis office
J. E. MOORE, manager of sales, Houston office
H. H. FULLER, manager of sales, New York office
V. R. BLACKWELL, salesman representative, Wichita
O. E. BERG, salesman, Houston
C. B. HINTON, salesman, Houston
L. H. WINKLER, metallurgical engineer
K. H. READ, metallurgical contact
P. E. McKINNEY, metallurgical engineer
G. LASCHOBER, metallurgical contact
W. R. PENMAN, Lebanon plant
H. M. COOLEY, Cambria plant

Bethlehem Supply Co.

G. A. THOMPSON, vice president
R. G. AYERS, sales manager
H. R. POWERS, assistant sales manager
R. E. DOW, assistant sales manager
H. A. WILSON, manager of price and order control
B. E. GROENEWOLD, manager machinery department

V. W. BAILEY	C. C. CRIDER

Division managers

R. A. JOHNSON, machinery engineer

H. A. BARNES	VAN D. BENNETT
J. T. FRETWELL	D. C. McLAUGHLIN

Sales engineers

R. A. JOHNSON	H. A. BARNES
T. B. SIMPSON	R. W. NEAL
G. W. STAGE	BRUCE HARRIS

Salesmen

W. A. CHANEY, assistant division manager

R. E. THROCKMORTON	R. A. BROWN
CHAS. CHAPMAN	M. W. BASS
T. H. SALTER	W. T. DAVIS
R. L. NEAL	J. H. IHRIG

District managers

The following from the Tulsa plant will be in attendance:

G. S. COMSTOCK, manager
WILLIAM CONRADE, superintendent
R. L. COBB, assistant superintendent
R. W. TRIMBLE, foundry foreman
L. W. WEEKS, machine shop foreman
J. B. WRIGLEY, mechanical engineer
J. F. EATON, design engineer

The following Tulsa representatives of the Bethlehem Steel Co. will be in attendance:

WM. CHAPMAN, resident salesman

J. G. BURKE	OTTO BUENTING
C. A. McCARTY	W. W. ALEXANDER

Salesmen

J. A. DUDLEY	J. J. LOVELL

Sales engineers

The exhibits of Bethlehem Steel Co. and Bethlehem Supply Co. occupy the Bethlehem Building and adjoining outside space on Drake Drive. The building was recently purchased from the Bridgeport Machine Co. by Bethlehem and was remodeled for the exposition.

Exhibits will feature the following products:

Wire rope.—Reels of rotary line, bethanized torpedo

line, and bethanized measuring line; different types of oil-country wire rope; coils of bethanized wire in various stages of manufacture; specimens of used coring lines—bethanized, hot dip and bright wire—with service records. Two operating models of wire-rope-making machines.

Tubular products.—A model showing the operation of Bethlehem's new butt-welding pipe mill is the feature attraction in this section. Products including physical test samples are shown. Also cutaway samples of seamless casing and tubing; transparencies depicting installations and applications of tubing and casing, and stock of oil-field tubular goods in Bethlehem's Houston and Memphis stock yards.

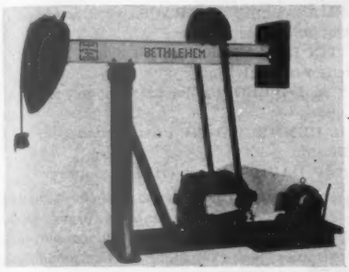
Sucker rods.—This exhibit includes a panel giving the characteristics and designation of all Bethlehem sucker rods; a complete line of couplings, and a comparison of the life of stellited and standard couplings; different sizes of pull rods; stages in the forging of a sucker rod; the method of packaging and shipping; a group of 16 transparencies showing all important operations in the manufacture of sucker rods.

Headed and threaded products.—A variety of alloy and corrosion-resisting bolts, nuts, studs, high-pressure screws, and other specialties are shown.

An unusual feature of general interest will be five animated panels showing the principal operations in making steel, including blast-furnace and open-hearth smelting, pouring steel ingots, and blooming and finishing mill operations.

In the outside space there will be a display of oil-field equipment as follows:

New design pumping units in operation.—The following will be operated: Types 24-DT-5, 51-DT-10, 51-DT-10RB, 123-DT-14L. Type 24-DT-5 rubber mounting of both beam-bearing and pitman ends is an outstanding



development in this model. The cushioning connection at the equilizer thus effected provides a means for protecting the reduction gears from sudden impulses or well shocks in pumping operations. Self-aligning roller bearings are used in the wrist pin and tapered roller bearings are used throughout the reducer. Pressure lubrication is used throughout and provision is made for separating water and impurities from the

circulating oil in the gear reducer. Type 51-DT-10RB. Full rotary balance is provided in this model with an ingenious method for adding or removing counterbalance weights from the crank. A new type of gear reducer featuring tapered roller bearings and a new design in gear-box construction. The equalizer assembly is carried by new design in tail-bearing hanger bracket which provides underslung construction and improves efficiency in operation. Also use is made of equalizing bearing for connection of equalizer assembly through tail-bearing hanger bracket.

New type lubricated stuffing boxes.—Two new designs in lubricated stuffing boxes will be shown. Positive lubrication of the two new boxes is effected by using a new type of molded rings in conjunction with pressure lubrication through both the gap and body of the stuffing box. Regular type and tandem type for higher pressures will be shown.

Engine-generator set.—To supply power to pumping units.

87-ft. cantilever mast.

Gumbo Buster rotary equipment.

Portable Rex pump.

PERFEX RADIATORS *Predominate* IN OIL FIELD SERVICE

SEE MID CONTINENT SUPPLY CO.

Check the number of Perfex installations you see at the Oil Show . . . you'll find that Perfex quality is recognized by the leaders in the field. Two important Perfex Developments—wider water pass and freer air flow—are two good reasons for this oil field predominance. Perfex builds industrial radiators, exclusively . . . its engineers know how and what to build for heavy duty service.

PERFEX CORPORATION • MILWAUKEE, WISCONSIN

Black & Decker Mfg. Co.
Towson, Md.
38-39 Texas Building
In attendance
J. F. APSEY, JR., advertising manager
F. H. SCHELL, sales promotion
E. V. SCHAUB W. L. POYNTER
R. H. SORRELS

Exhibiting portable electric saws, drills, hammers, grinders and shears, all applicable to maintenance work in the oil industry. Practical working demonstrations will be a feature.

Binks Manufacturing Co.
Chicago, Ill.
52-53 California Building

Exhibiting its full line of cooling towers and heat exchange coils for closed-type cooling system for diesel engines, as well as its complete line of spray painting and finishing equipment for the maintenance painting

All-steel two-section unit tower

of buildings, oil-well derricks, gas tanks, pipe lines and other oil-field equipment.

Representatives well versed in spray-painting equip-

ment and water-cooling equipment from the Chicago office will be in attendance, as well as local representatives from Texas and Oklahoma.

Black, Sivalls & Bryson
Oklahoma City, Okla.

39-40-65-66 California Building

In attendance

A. J. EDWARDS	DON TORR
ED BYERS	E. E. CARTER
G. RAYMOND	JAKE GRUBB
MARION MILLER	RALPH NICHOLS
GURNEY PEOPLES	BYRON M. HILL
W. W. MASON	VERNE PALMER
FLAVY POWELL	HAL FESSLER
RALPH STEVENS	PAUL HICKMAN

The chemical feeders manufactured by the company were originally designed for injecting emulsion-treating chemicals into oil flow lines under pressure. Recent refinements in design have widened the scope of their usefulness. In addition to their original application, they are said to be particularly well suited to the injection of various liquids into pressure lines at oil wells, in water-treating plants, in gas lines, and in many process industries. They are especially useful in injecting paraffin solvent into flow lines and tubing strings; and in injecting alcohol into gas lines ahead of pressure-reducing devices to prevent freezing. They use a pressure source of gas or compressed air as an operating medium. These feeders have a large-capacity range.

Automatic chemical feeders

Recent tests definitely show that thief and vent valves previously used leaked excessively. A new bottletight valve joint (patent pending) is said to be absolutely pressuretight to about 80 per cent of its relieving pressure.

The company had numerous calls for a safe heater for high-pressure fluids and gases and the indirect heater was designed to fill this need. It was built for careful water-bath heating of oil and gas. The gas-heated fire tube section transfers heat to fresh water which surrounds and heats the fluid tubes. It is a complete unit consisting of a fire-tube heating section and flow-tube bundle heat exchanger.

Bonney Forge & Tool Works
Allentown, Pa.

93-94 Kansas Building

In attendance

A. J. MALE, secretary and treasurer

JEAN DuBOIS — RON WIXSON

Displaying a complete line of the company's WeldOlets, ThredOlets and socket-end WeldOlets, designed especially to make the strongest possible welded piping outlet in the least amount of time and at the lowest possible cost. In addition a full line of the company's tools will be featured, including sockets with detachable handles, open-end wrenches, box wrenches, pipe wrenches, construction wrenches, structural wrenches, combination box and open-end wrenches, hack saws, screw drivers, punches, chisels, pliers, hammers, etc.

Bovaird Supply Co.
Tulsa, Okla.

Bovaird Building, Block 1, Drake Drive

ASSOCIATE EXHIBITORS

Emsco Derrick & Equipment Co., Houston, Tex., will display its all-steel power slush pump, also its pumping unit, both in operation.

Manheim Manufacturing & Belting Co., Manheim, Pa.: Veelos V-belt, adjustable link belt.

Mid-Continent Pump Supply Co., Tulsa: Pacific and Oil States pumps. A metal-to-metal pump with sectional liners and steel or chrome plungers. No cups—no packing.

Williams Co., Hutchinson, Kans.: Control pumping choke for water-driven oil wells having a reasonably high fluid level or bottom-hole pressure. Maintains the bottom-hole pressure on the pay zone.

Regan Forge & Engineering Co., San Pedro, Calif.: Its crown block, traveling block and rotary hook.

Dempster Mill Manufacturing Co., Beatrice, Neb.: Will feature in operation its special salt-water centrifugal pump and its line of regular centrifugal pumps, Cushman gas-gasoline engines, Dempster water systems and enclosed type of deep-well water pump.

Hazard Wire Rope Co., Wilkes-Barre, Pa.: Wire rope, Lay-set and Nonpareil. A stand with reel of wire rope revolving.

E. M. Smith, Los Angeles, Calif: Grizzly rotary hose with new pressure-seal couplings.

Republic Rubber Co., Youngstown, Ohio: Super Excelo rubber belting and complete line of mechanical rubber goods for oil-field use.

Oil Well Improvements Co., Tulsa: Orbit valves.

Century Electric Co., St. Louis, Mo.: Display of an electric generator and of various types of electric motors.

Caterpillar Tractor Co., Peoria, Ill.: Diesel-electric set—a one-package unit complete with independent starting engine.

In attendance

W. M. BOVAIRD, president
F. D. BOVAIRD, vice president
D. D. BOVAIRD, treasurer
R. M. McMAHAN, secretary
S. J. RAPHEL, sales manager
A. C. STENSGAARD, Tulsa city salesman (in charge)
T. C. McCUISTION, sales department, Tulsa

CLYDE STAPLETON	F. J. ROBBINS
D. D. BOWERSOCK	W. H. SHERIN
CHARLES MEYERS	J. B. HUBBARD
JAMES IRVINE	C. A. BLACK
D. M. BRADLEY	R. E. BATCHELOR
E. R. CHASTAIN	R. E. GORMAN
W. J. MILLER	O. K. WORLEY
C. V. DENNIS, JR.	D. C. OSMER
E. B. SNELL	R. W. ROBBINS
R. E. WHITTEN	J. P. TUNE
H. J. ZEIGLER	D. C. KENNEDY
GEORGE R. FRENCH	C. W. HENRY
D. W. CUNNINGHAM	C. E. PEARSON
M. R. McMANIGLE	V. P. McANALLY
C. E. REYNOLDS	L. W. BARTHELD

R. J. EVANS, JR.

Dempster Mill Manufacturing Co., I. N. Downs.

Fairbanks Co., George W. McLean, Jr.

Emsco Derrick & Equipment Co., S. W. Webster, L. W. Stahl, C. L. Lamkin, Paul Courtney.

Manheim Manufacturing & Belting Co., Frank Shafran.

Williams Co., C. M. Williams.

Hazard Wire Rope Co., W. W. Runkle, J. R. McCrea, Charles Little, Clyde Troutman.

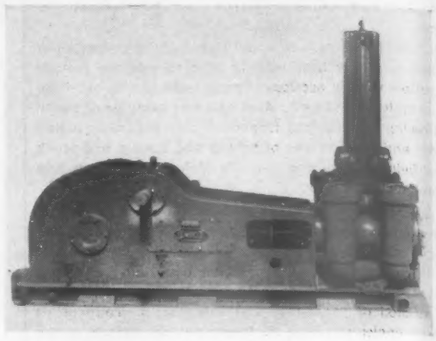
Century Electric Co., Fred Powers, R. A. Jervis.

E. M. Smith Co., D. E. Carter.

Republic Rubber Co., N. M. Grove.

The Dempster special salt-water disposal centrifugal pump is for severe service, particularly suitable for salt-water pumping, drainage or other purposes involving corrosion or sediment-carrying waters. Also, perfectly suitable for clear-water service.

An Emsco power slush pump will be displayed in 7¼ by 12 size in operation with lubrication system visible. Emsco pumps are all-steel construction with fabricated power end and cast-steel fluid end. A tremendous saving in weight over conventional construction is effected. At the same time greater strength is assured. Two primary purposes lie behind the design of these pumps, i.e., substantial reduction in weight (average of one-third less than similar size pump of conventional construction) and the strength and ruggedness of steel. The use of cast-steel fluid end permits easy field repair by utilizing welding. Any fluid cut or abrasion, particularly of the cylinder or valve chambers may be built up and machined without the renewal of such parts.



Brauer Machine & Supply Co.
Oklahoma City, Okla.

Block T

Bridgeport Brass Co.
Bridgeport, Conn.

22-23 Texas Building

In attendance

HERMAN W. STEINKRAUS, vice president in charge of sales
AUSTIN R. ZENDER, sales manager, condenser-tube division
ROY A. EGELHOFF, district manager, St. Louis
W. C. HUMMELBAUGH, district manager, Houston
PHILIP DAVIDSON, advertising manager

Featuring the latest condenser and heat-exchanger alloys made from admiralty, aluminum brass, aluminum bronze, red brass, Muntz metal and copper. Also samples of Duplex heat-exchanger tubing made from two different kinds of materials for excessive corrosive conditions too severe for a single metal or alloy. Duplex tubes consist of two tubes of different materials, one drawn within the other—each one designed to take care of either the oil or water side independently.

Duronze sucker rods will also be featured. Samples will be shown which had been in use for over 20½ months in one of the most corrosive oil wells in West Texas.

The Bristol Company
Waterbury, Conn.

15-16 Scientific and Technical Building

In attendance

H. E. BEANE, field sales manager
E. L. STILSON, special sales engineer, petroleum industry
A. A. BLACKMAN, St. Louis district manager
D. D. AULT, sales engineer
R. A. BARNES, sales engineer
C. R. DeARMAN, sales promotion department

Process-cycle controllers will be featured:

1. For regenerating or changing catalysts, or
2. For the interlocking of timed operations with the control of other process variables, such as pressure, flow, temperature, vacuum, liquid level.

A control panel demonstrating the operation of these automatic control instruments will be exhibited—illustrating Bristol's system of coordinated process control.

The Metavane system of pneumatic telemetering will also be featured, showing the simple construction and the speedy, accurate response provided for long-distance recording or remote control.

Other instruments to be exhibited include Bristol's:

Round-chart explosion-resisting potentiometer recorder.

Strip-chart multiple-point potentiometer recorder.

Reset control instruments.

YOU KNOW US BEST FOR COUPLINGS

But do you know we also build 41 other pipe-line products?

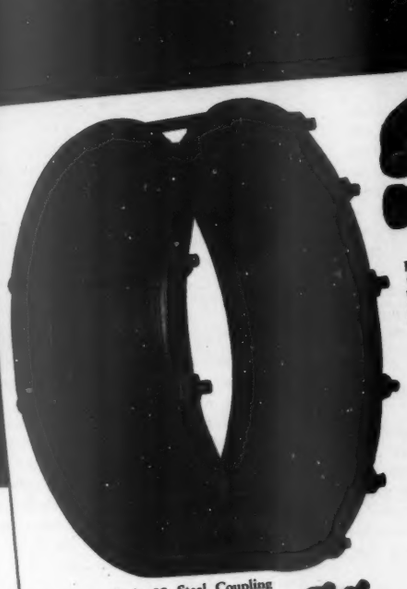


Fig. 164b. Style 38 Steel Coupling (20" O.D.) makes a flexible yet permanently tight connection on plain-end pipe. Size range: 3/8" I.D. to largest pipe made. **Insulating, reducing,** and **angle couplings,** based on this same general design, are also furnished.

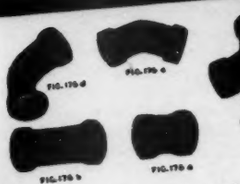


Fig. 176. Style 65 Standard Fittings (1¼" I.D.) for joining plain-end (or threaded-end) steel pipe. Self-contained, flexible, tight. Sizes 3/8" I.D. to 2" I.D. inclusive.

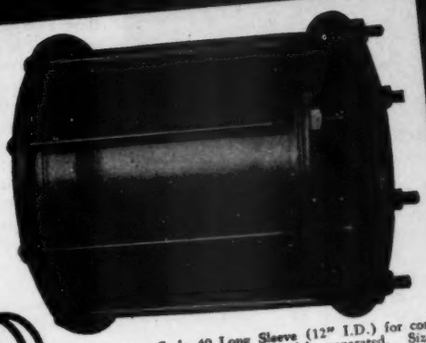


Fig. 195a. Style 40 Long Sleeve (12" I.D.) for connecting pipe ends that are widely separated. Sizes ½" I.D. to 24" O.D. incl.

Fig. 168b. Style 38 Steel Coupling (5⅝" casing) for joining plain-end, light-wall steel pipe. Sizes 2" O.D. to 8" I.D. incl.

Fig. 214. Steel Pipe Saddle (8" I.D.) for making branch connections on steel and cast-iron pipe. Sizes 3½" to 24" incl. A malleable saddle is also furnished for steel pipe.

Fig. 218. Style 63, Type 1, Expansion Joint (8" I.D.) used where more than ordinary longitudinal pipe movement is concentrated at one point. Sizes 3" I.D. to 24" O.D. incl. Three other types are also available.

Fig. 199. Style 68, 45° Ell (6" I.D.) for making connections on sharp turns or bends. Sizes 1¼" to 24" incl. A full line of 90° ells, tees, crosses, laterals, and line caps is also supplied.

Fig. 226. Style 47, Type 1, Heavy River Clamp (6" I.D.) encloses unclamped screw collars or welded joints. Sizes 3" I.D. to 8" I.D. Another type encloses couplings or clamped collars.

Fig. 257. Style 78 Saddle Clamp (4" I.D.) repairs small leaks and holes in pipe. Sizes ¾" I.D. to 4" I.D. incl.

Fig. 258a. Style 79, Type 2, Split Repair Clamp for repairing pipe splits or breaks. Supplied for any pipe size and in any length. Furnished also with two half-shells and straight bolts (Type 1)

Fig. 253. Style 74 Screwed-Fitting Clamp (8" I.D.) repairs leaks through the threads of screwed fittings. Sizes ⅜" I.D. to 10" I.D. incl.

Fig. 264. Style 73 Cast Split Sleeve (12" I.D.) repairs circumferential welds, screw collars, splits, holes, etc. Maximum working pressure, 250 lbs. per sq. in. Inside length 8". Sizes 2" I.D. to 12" I.D. incl.

Fig. 273. Style 54A Cast Split Sleeve (16" O.D.) repairs bolted joints of various types on steel pipe, as well as all types of breaks or joints enclosed by Styles 52A or 73. Maximum working pressure, 500 lbs. per sq. in. Sizes 2" I.D. to 26" O.D. incl.

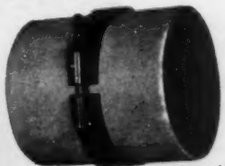


Fig. 255. Style 77 Band Clamp (10" I.D.) repairs small holes and leaks in pipe. Sizes 3" I.D. to 24" O.D.

Fig. 216a. Swaged Nipple (4" I.D. to 6" I.D.) Concentric and eccentric types are available with plain, threaded, or beveled ends. Sizes ½" to 20" O.D.

Fig. 251. Style 55 Porous-Weld Clamp (8" I.D.) repairs porous (but not broken) circumferential pipe welds. Sizes 2" O.D. to 24" O.D. incl.

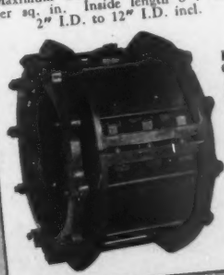


Fig. 262. Style 52A Cast Split Sleeve (18" O.D.) is used for the same purpose as Style 73, except maximum working pressure is 300 lbs. per sq. in. Inside length 8¼". Sizes 4" I.D. to 26" O.D. incl.

Fig. 232. Style 3, Type 2, Cast River Sleeve (6" I.D.) is a dual joint, with weight, for river crossings. Sizes 2" I.D. to 12" I.D. incl. A steel sleeve is also made.

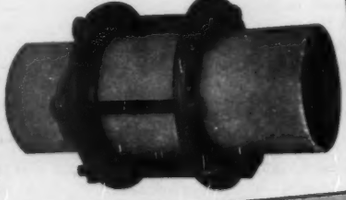


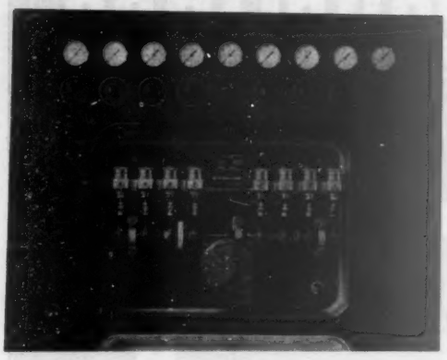
Fig. 248. Style 41 Collar Clamp (6" I.D.) prevents and repairs leaks in screw collars (threaded couplings). Sizes 4½" I.D. to 12" I.D. Style 4 is made for sizes ¾" I.D. to 4¼" CAS.

For complete information on all styles of Dresser products, write on your business letterhead for our General Catalog No. 36.

DRESSER MANUFACTURING CO., BRADFORD, PA.

IN CANADA: DRESSER MANUFACTURING CO., LIMITED, 60 FRONT ST. W., TORONTO, ONT.

Portable resistance thermometer.
Valve positioner.



Process cycle controller

Flow-ratio controller.
Visitors will be cordially welcomed.

Brodie Co., Inc.
Oakland, Calif.

8-9 Kansas Building

In attendance

J. J. KROPP — G. F. BURNETT
WARNER LEWIS — A. G. McNEIL

Displaying a complete line of meters and metering equipment designed for all types of petroleum service, including oil wells, pipe lines, refineries, lease tanks,

main-line stations, bulk-storage plants, loading racks, tank trucks, etc. The company's meters are built in a wide range of types and sizes for withstanding pressures up to 1,000 lb. per sq. in. and handling capacities up to 1,428 bbl. per hour.

In addition to its standard line of meters, strainers and air eliminators, flow valves, and accessories, there will be featured the Brodimatic counter, the Brodimatic quantrol and the outstanding Brodimatic printer. Described as one of the latest advancements in petroleum metering, the Brodimatic direct-totalized-reading counter has been designed and perfected for the prevention of errors in measurement readings. It combines the simplified direct-reading and space-saving compactness of the horizontal-type counter with greater distance spanning visibility. Inch-high yellow numerals on a black face give the counter a visibility equal to that of a 22-in. dial. By means of a patented snap-action movement, the large legible numerals snap in and out of their windows, overcoming guessed-at totals.

The Brown Instrument Company
Philadelphia, Pa.

41-42-43 Scientific and Technical Building

In attendance

E. B. EVLETH, vice president and general manager
L. MORTON MORLEY, vice president and general sales manager
G. S. YOUNKIN — R. L. MALLORY
R. P. WALKER — E. B. KOHL
M. PETTY — R. W. GROENDYCKE
R. B. WEREY — R. A. WEIKEL

The Brown Instrument Co., a division of Minneapolis-Honeywell Regulator Co., will have on display a new line of indicating, recording and control instruments for the regulation of temperature, pressure, flow and liquid level in refinery processes.

Featured is a working demonstration showing an indicating transmitter, equipped with the Brown penumatic remote transmission system by which temperature, pressure, flow and liquid-level measurements may be indicated, recorded and controlled remotely. This system is particularly applicable for use in hazardous atmospheres where the use of electricity is to be avoided. The Brown combined electric and air-operated flow and liquid-level system for remote transmission will also be in operation with the Brown pneumatic remote transmission system.

The following instruments will also be in operation: Brown thermometers, pressure gages, flow and liquid-level meters: An entirely new and improved line of temperature, pressure, flow and liquid-level recorders, indicators, and controllers in a modern, streamlined, rectangular case—styled by Henry Dreyfuss, designer of the "Twentieth Century Limited." These new rectangular-case instruments blend with the panel surface and surrounding instruments to give the much desired flush appearance. Added beauty goes hand in hand with advanced mechanical design. The classic, simple lines of the modern rectangular cases are in keeping with the simplicity and precision of the mechanism they contain.

Brown Air-o-Line controller: For coordinating temperatures, pressures, flows and liquid levels.

Brown flow meters in both electrical and mechanical types . . . indicating millivoltmeter pyrometers . . . indicating potentiometer pyrometers with multiple-key-type switch panel . . . Brown multiple recording potentiometer pyrometers . . . and the well-known line of Brown air-operated controllers, including Air-o-Line full throttler and throttler-type instruments for controlling refinery processes.

Charles Bruning Co.
Chicago, Ill.

63-64 Scientific and Technical Building

Displaying the company's new Mercury 75 printer, a different type of blueprint machine, highly streamlined and employs the use of the Hanovia Chemical &

Manufacturing Co.'s new high-pressure mercury quartz lamp. The "75" prints at a speed of 20 to 22 ft. per minute, using regular BW paper or medium speed blueprint paper up to 42 in. in width. The revolving pyrex contact cylinder with 2-in. wide endless contact band provides perfect contact and eliminates creep or side travel. Other features are—ease of cleaning and operation; new positive feed and release; low operating and maintenance cost; current consumption less than one-third of that used by arc lamp type of printers; gradual speed control; no rheostat, gear changes or friction devices.

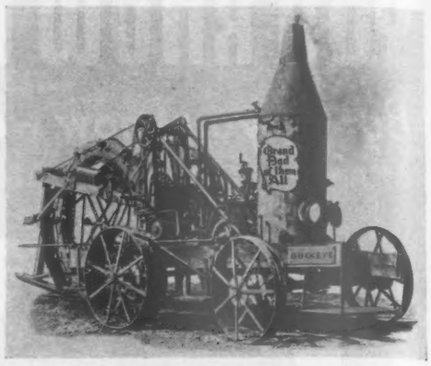
Buckeye Traction Ditcher Co.
Findlay, Ohio

Block 102, rear of Kansas Building

In attendance

W. H. SCHOMBURG, president and general manager
PAUL B. COCHRAN, sales manager
H. HOLLMANN, chief engineer
E. C. SWARTZ, sales engineer
N. G. LIVINGSTON, sales engineer
FRANK P. LAWLER, chief engineer

The company will be represented by an "old timer" in the pipe-line installation game, the oldest trenching machine built still in operation. Built over 40 years



ago, this old Buckeye ditcher is powered by a steam engine, has a wooden frame, wooden steps and uses wooden-bearing caps. It was as crude as unrefined oil, but it did the work in those days. It trenched only up to 4½ ft. deep, 11⅛ in. wide and from 1½ to 8 lineal ft. per minute, depending upon soil conditions. This "old timer" required a steam engineer with a natural bent for geophysics, unlike the Buckeyes of today which are child's play to operate compared to the old wood burners.

In direct contrast to the "Grand Dad of Them All" will be the Model 12-A wheel-type ditcher which features higher digging speeds, greater flexibility and simpler, more easy to maintain construction. Power transmission has been unusually simplified and a new bridge-type rotary-wheel hoist frame has been incorporated in this new model which is an ideal unit for the shallower depth present day lines.

The new Model 410, a compact, readily portable boom-type ditcher, ideal for close-in work on gathering line installation, will be exhibited and the Model 48, long a favorite with pipe liners will also be shown.

In addition, a Clipper full-swing convertible power shovel, a bulldozer and other equipment will be shown.

Bucyrus-Erie Co.

Block 4

South Milwaukee, Wis.

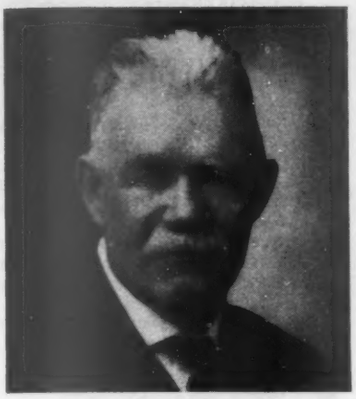
In attendance

P. H. BIRCKHEAD, sales manager
L. B. BIRCKHEAD, drill sales manager
F. O. WYSE, publicity director
G. R. WATSON — H. W. THORNBURG
H. C. NEELY — R. C. RIGGS
J. B. BALLARD — H. A. WELCH
H. C. KAUFMAN, Kaufman Co., Los Angeles

Exhibiting two full-size drills, the new 36-L spudder and its smaller companion, the now-popular 24-L spudder, to be erected outdoors and to have a can-

36-L spudder

DONOVANS FOR 63 YEARS



Grandfather
HUGH DONOVAN, Sr.

Father
HUGH DONOVAN, Jr.

Son
ROBERT DONOVAN

More Than a Half Century of Keeping Faith

The first shop of the Donovan Boiler Works, at Knox, Pa., 1890.

SINCE 1877 the name Donovan has been associated with oil country boilers. Three generations of Donovans have contributed towards making the name Donovan synonomous with fine boilers in the leading oil fields of the world.

From 1877 to 1890 Hugh Donovan, Sr., engaged in the repairing of boilers. In 1890, Hugh Donovan, Jr., who followed the trade, for several years previous to 1890, with his father, started the Donovan Boiler Works at Knox, Pa. In 1900 the business was moved to Cairo, W. Va., where in 1907 Hugh Donovan, Jr., designed and built the first Donovan Boiler.

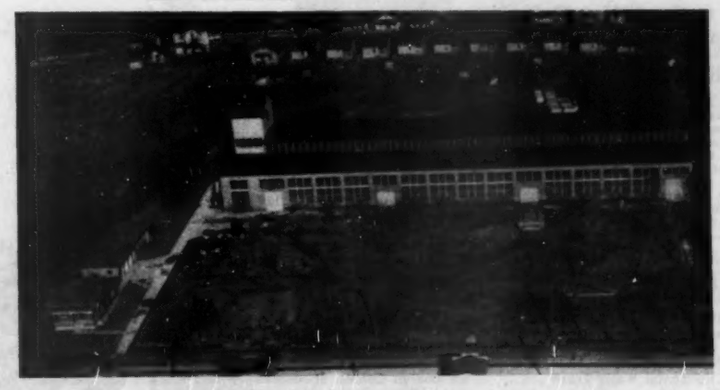
With the business devoted exclusively to the manufacturing of boilers, the Cairo plant soon became inadequate and a plant was built in Parkersburg, W. Va. The business grew and in 1920 a still larger plant was built in South Parkersburg and the business moved there. In 1930 a large and extensive modernization and improvement program was completed. Giant radial drills, bending rolls, traveling cranes and other equipment were installed, greatly increasing the plant's capacity. Thus through three generations the business has grown.

Today, as it has always been, the policy of the Donovans is to keep abreast of developments in the oil and gas industry and to maintain adequate facilities to care for domestic and foreign business, and to keep faith with their friends and customers. As it has been done in the past, so will it be done in the future, that the name Donovan may continue to stand for the highest quality and workmanship in boilers.

SIXTY-THREE YEARS OF PROGRESS BUILDING

BOILERS

FOR THE OIL FIELDS



Air view of our present plant. With over 50,000 square feet of floor space, it is equipped with the most modern machinery.

DONOVAN BOILER WORKS, *Parkersburg, W. Va.*

Distributor: FRICK-REID SUPPLY CORPORATION, Tulsa, Okla. . . . . New York City

vas canopy under which visitors can rest while discussing drilling and oil-field problems. A one-fourth scale working-model drill will be displayed at the Hall of Science.

The company's "brand new" 36-L spudder was designed to give oil men the largest capacity modern spudder suitable for high-speed highway transportation. The 36-L has ability to handle drilling tools equal to one-fifth the total weight of the complete machines; over 4,500 lb. of tools in shallow holes or combined weight of 6,000 lb. to 7,000 lb. of tools and cable in deeper holes. It is powered with a gasoline engine developing 86 hp. at 1,400 r.p.m. or 112 hp. at 2,200 r.p.m., and can be equipped with water-cooled manifold. A natural-gas engine using gas or gasoline, as well as a diesel, is also available.

Three types of mounting are offered: Skids, rubber-tired trailer, and steel wheels. On rubber the rig weighs about 23,000 lb. without tools or lines and can be hauled at speeds up to 30 miles per hour on paved highways. Maximum width of 8 ft. permits moving over any highway.

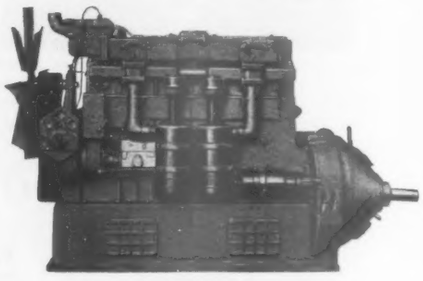
The Buda Co.
Harvey, Ill.

Block M

In attendance

The Buda Co.

J. S. DEMPESY, president
R. K. MANGAN, vice president
R. H. HEBERLING, sales engineer
J. C. BASEHEART, sales engineer, Fort Worth, Tex.
A. F. OCHTMAN, executive engineer
HAROLD G. SMITH, chief engineer
FRANK G. ADAMS, quality engineer
FRANK GORMLEY, JR., service manager
A. V. SIMONSON, export representative, New York
D. C. PETERSON, factory manager Buda Engine Sales & Service, Inc.
J. M. CULLENS, president, Tulsa
O. F. DICKENSON, secretary-treasurer, Tulsa
C. E. (BUD) WRIGHT, sales manager, Tulsa
FLOYD L. SWINDELL, sales engineer, Tulsa
P. O. BAKER, service manager, Tulsa
CLARK HANSON, service department, Tulsa
W. H. CARPENTER, sales engineer, Oklahome City, Okla.
DON L. DAVIS, sales engineer, Wichita, Kans.
W. C. MORGAN, sales engineer, Salem, Ill. Buda Engine & Equipment Co.
W. H. BENDUHN, manager, Houston, Tex.
A. E. LeCLAIRE, sales engineer, Odessa, Tex.
E. N. SPIARS, sales engineer, Dallas, Tex.
J. L. JOPLIN, sales engineer, Houston, Tex.
WALTER HANSON, sales engineer, Houston, Tex.
W. J. EVANS, sales engineer, Houston, Tex.



Buda Type 6-DH-1879

The Buda Co., in conjunction with its distributors, Buda Engine Sales & Service, Tulsa, and Buda Engine & Equipment Co., Houston, will show seven oil-field-type models and one automotive model, two of which are being shown for the first time in the Mid-Continent. Probably the oustanding feature will be Model H-1879, vertical type, six-cylinder, four-stroke cycle, 6¾-in. bore and 8¾-in. stroke, 1,879-cu. in. piston displacement, natural-gas or butane engine with cylinder heads that permit either diesel or natural-gas operation without removal from the block. This model can be converted to full Buda-Lanova type diesel, 6-DH-1879, without being removed from its field application and with a minimum of expense and down time. Another model being shown for the first time in the Mid-Continent is the 6-DT-317 "packaged" automotive diesel designed for Ford cab-over trucks but applicable to other makes of trucks.

A feature which should attract considerable interest, shown in operation under load, is a gas-engine-driven electric-generating plant consisting of one 25-kw. and a 15-kw. unit, automatically synchronized and remotely controlled from the exhibitors' sound-proofed, air-conditioned office. It is also planned to equip one engine fully explosionproofed to meet requirements of the various state laws.

E. D. Bullard Company
San Francisco, Calif.

29 California Building

In attendance

ALPHEUS BULL, sales manager
T. H. FELDS, manager, Houston office

Safety equipment for the petroleum industry will be again featured in the company's booth. Of interest to petroleum safety men are the new developments in Willson goggles and respirators. Some items will be shown for the first time.

A complete display of Wheat electric lamps and spotlights will also be on display, together with the new and improved charging apparatus to maintain Wheat's high efficiency.

The first-aid section will feature the cylindrical first-aid kit with its new-style mounting, making it adaptable for standardized use throughout any oil property. The Venex first-aid kit for snake-bite treatment will make its 1940 appearance in an improved container with certain of the units also improved. A complete assortment of gas masks, with particular reference to the requirements of the petroleum industry, will be on

MAKE YOUR BLUE PRINTS
THE MODERN WAY

SEE PEASE
BLUEPRINTING EQUIPMENT
AT THE OIL SHOW

When you install a Pease Model "12" or Model "22" Continuous Blue Printing Machine you have a machine which, in the opinion of five competent Judges, leads in "Outstanding Design and Technological Advancement." This modern engineering by Pease brings you the savings you have a right to expect through quality prints produced rapidly at *less cost per square foot.*

Model "12" includes 5 outstanding features:

1. **Sliding Contact** . . . which permits the greatest possible light utilization.
2. **Patented Lamp Circuit** . . . which permits lamps to burn steadily 45 minutes without breaking the arc and resume instantaneously.
3. **Long Horizontal Water Wash** . . . . which allows the paper to expand normally without tension wrinkles.
4. **Quick Change Chemical Applicator** . . . which provides a 30 second change-over from Blue Prints to Negatives, or vice versa, and saves chemical.
5. **5 Drying Drums** . . . which thoroughly dry and calendar the prints to a flatness never before achieved.

When you consider these features and realize that Model "12" produces high quality prints at 12 feet per minute, you will understand why the *five Judges chose modern Pease design, and why the new streamlined Pease Continuous Blue Printing Machines provide the most modern reproduction methods, as well as the greatest single factor in achieving economy and efficiency in your Blue Printing Department.

"The five Judges for the 1939 Product Design Contest sponsored by Electrical Manufacturing Magazine—names upon request.

THE C. F. PEASE COMPANY
2691 West Irving Park Road . . . Chicago, Illinois

THE EMBLEM OF QUALITY IN EVERYTHING FOR BLUE PRINTING
PEASE

Third of a series, "How Pease Blue Printing Equipment is Serving the Oil and Gas Industry"

TOPS *in* EQUIPMENT FOR TOP *Performance*

THE *New* EMSCO

Streamlined M-50 CROWN and TRAVELING BLOCKS

Here are Emsco's new series M-50 Crown and Traveling Blocks with 50" balanced sheaves, larger bearings and greater carrying capacity . . . plus extremely narrow design that allows more pipe racking space and speeds up operations in general.

Both the M-50 Crown and Traveling Blocks have specially designed 27½" roller bearings mounted on a 19" center drum. This unique bearing design makes possible exceptionally rapid fall of the traveling block under light loads, provides ability to withstand the heaviest loads under high speeds and insures a long service life. Ask for descriptive literature or prices from any Continental representative.

Emsco M-50 Crown Block—Inner bearing race adjustable to any degree to present new load side when wear occurs. Bearing parts replaceable without replacing entire bearing.

Emsco M-50 Traveling Block—Note short design allowing utilization of full derrick height. Sheave and bearing assembly is interchangeable with M-50 Crown Block, both having same sheave centers, thereby reducing feet angle and minimizing wear due to thrust.

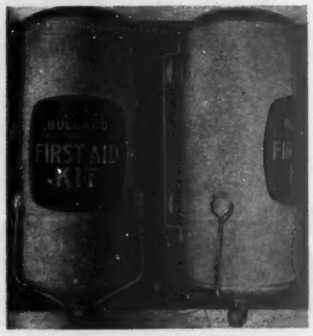
THE CONTINENTAL SUPPLY COMPANY
General Offices: DALLAS, TEXAS
Foreign Sales Subsidiary
CONTINENTAL EMSCO COMPANY, Inc.
30 Rockefeller Plaza New York City, N. Y.
Representatives:
LONDON MARACAIBO BUENOS AIRES TRINIDAD

SERVING THE OIL AND GAS INDUSTRIES

See Our Exhibit
INTERNATIONAL PETROLEUM EXPOSITION
TULSA
MAY 18-25

Continental

display as will the H. & T. derrick slide for quick escape from oil-field derricks. Several types of web safety belts particularly designed for use in oil fields will also be featured.



Cylindrical first aid kit

Bunting Brass & Bronze Co.
Toledo, Ohio

64 Oklahoma Building

In attendance

G. H. ADAMS, director of sales
J. F. ROBERTS, southwestern factory representative
D. C. SPAULDING, product engineer

Exhibiting a representative display of the parts which are supplied to the industry, which will include cast-bronze bearings of all kinds, babbitt-lined bearings, electric-motor bearings, cored and solid-bronze bars of bearing metal, and bearings of special design.

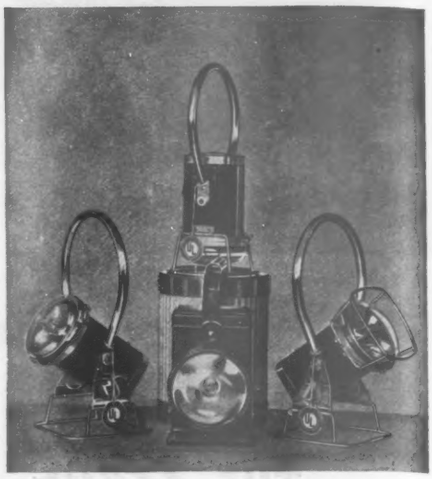
Burgess Battery Co.
Freeport, Ill.

86 Scientific and Technical Building

In attendance

GEORGE F. JEPHSON PAUL THURMAN
E. C. NICKERSON

Exhibiting a new line of safety lanterns incorporating several outstanding features, approved by the U. S. Bureau of Mines and Underwriters' Laboratories, Inc. Also an interesting assortment of special type dry



batteries designed for use in oil-field development and production equipment.

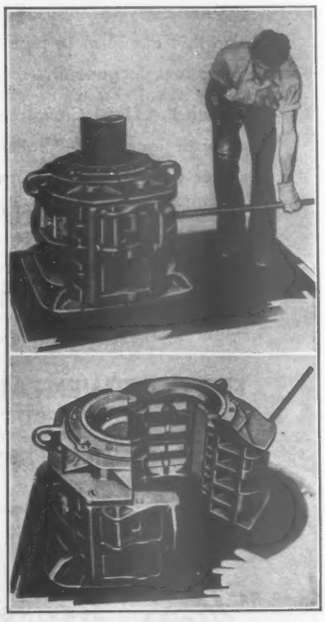
Byron Jackson Co.
Los Angeles, Calif.

136-137 Oklahoma Building

In attendance

FRANK CHAMPION, vice president
C. F. VINCENT, Mid-Continent sales manager
R. B. GRAINGER G. O. JACOBS
R. T. TODD J. D. HICKS
B. A. HILLARD M. B. MOORE
D. O. PUGH E. W. STUART

Split-type casing spider: All sizes of casing from 5 to 13⅜-in. A.P.I. can be run with this spider through the use of interchangeable slips. The body is made in



two halves which are hinged at the back and double locked by a heavy stirrup-type latch and latch lock when set over the hole. The casing is supported on four slips, each 18 in. long, which have flat backs to provide the same positive gripping action regardless of their vertical position in the spider body. They grip the pipe uniformly and securely with a minimum of vertical travel even when the pipe is undersize or oversize. Operation of the BJ casing spider is accomplished by moving a simple lever which opens all four of the slips simultaneously. When running casing, one of the crew holds the lever down so that the slips are retracted. A guide plate prevents the casing from dragging across the slips while running in. Releasing the lever causes the slips to set uniformly around the casing, thus automatically avoiding the danger of

The Potent COMBINATION of ★C.P.S.!

● **MANPOWER:** To each acidizing job, Chemical Process sends men whose technical knowledge covers every acidizing problem . . . whose experience guarantees results.

METHODS: Pioneer in the use of modern multiple hook-up technique, Chemical Process employs only those methods backed by science and actual testing . . . methods that are accurate . . . efficient . . . dependable.

EQUIPMENT: Chemical Process acidizing equipment is fully modern . . . completely mobile . . . specifically designed to make possible a better, more profitable job of acidizing your well.

. . . Check these facts—they tell you why oil men say: "Call Chemical Process . . . and get the job done right!"

* Chemical Process Service

CHEMICAL TREATMENT OF OIL AND GAS WELLS

THE CHEMICAL PROCESS COMPANY

MAIN OFFICES; PHONE 206 BRECKENRIDGE, TEXAS

PHONE, WIRE OR WRITE YOUR NEAREST CHEMICAL PROCESS SERVICE STATION

HUGOTON, KANSAS
Tel. 211—C. J. Thompson

RUSSELL, KANSAS
Tel. 493—C. R. Vincent

WICHITA, KANSAS
Tel. 2-2478—C. V. Burkett

SHREVEPORT, LA.
Tel. 2-9865—B. H. Reynolds

HOBBS, N. M.
Tel. 444—P. W. Morrison

SEMINOLE, OKLA.
Tel. 844—T. S. Lancaster

TULSA, OKLA.
Tel. 3-0807—M. E. Chapman

BRECKENRIDGE, TEXAS
Tel. 206 and 306—C. K. West; P. W. Pitzer; G. R. Whitney; A. J. Buchanan
Tel. 849—A. C. Hanna
Tel. 745—B. M. Kingston

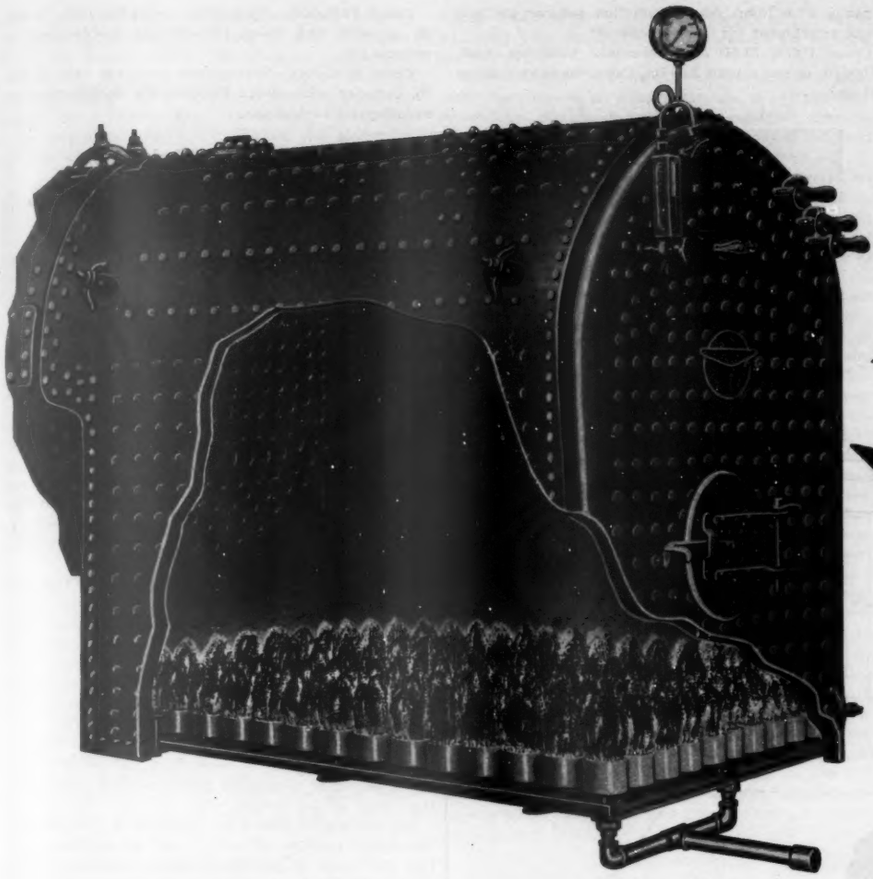
DENVER CITY, TEXAS
Tel. 54—J. Roy Derrick

BORGER, TEXAS
Tel. 358—C. J. Thompson

LULING, TEXAS
Tel. 390—M. W. Fredenburg

ODESSA, TEXAS
Tel. 21—C. F. Hogan

WICHITA FALLS, TEXAS
Tel. 2-4307—
W. E. (Bill) Norton

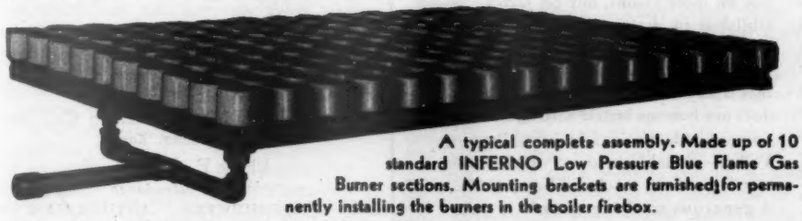


INFERNO
Low Pressure
BLUE FLAME
GAS BURNER

- SAVES FUEL
- SAVES BOILER REPAIR
- 10% MORE BOILER H.P.

The 15" x 25" x 7½" Standard Unit
15 burner head section with threaded inlets on all four sides.

Cross section of the New INFERNO Low Pressure Blue Flame Gas Burner head.



A typical complete assembly. Made up of 10 standard INFERNO Low Pressure Blue Flame Gas Burner sections. Mounting brackets are furnished for permanently installing the burners in the boiler firebox.

What do you expect of a Burner? Do you want one that will produce just a fire . . . or do you want one that will produce heat to quickly generate steam economically.

INFERNO Low Pressure Blue Flame Gas Burners do not produce just a FIRE. They are scientifically designed to produce an intense heat, in a clear blue flame, close to the burner head. The entire firebox area and the flues have an opportunity to absorb the maximum heat produced and the boilers are permitted to generate 10% more h.p. of steam.

Long laboratory and field tests taught us how to double reverse the flow of gas and primary air to secure the perfect mixture for complete and instantaneous combustion close to the burner head. No unburned gases escape. Many tests made with these new burners reveal from 10% to 11% CO_2—a percentage much higher than conventional burners.

Special features of the New INFERNO Burners are:

- Permanently assembled by screw-locking insert in cup which screw-locks into frame, making it one complete unit.
- Loss and breakage in moving eliminated by entire assembly being permanently fastened in boiler.
- Double-duty section frames incorporate manifold facilities and eliminate need for extra manifold.
- Each section 15" x 25" and only 7½" high contains 15 burner heads. Threaded inlets on all four sides make it easy to arrange in groups to fit the firebox of ANY boiler.
- A low blue flame, with intense heat close to the burner head.
- 10% more boiler h p. attained.
- 10% to 11% CO_2—a percentage much higher than conventional burners.
- Operates perfectly on 8 oz. to 10 lb. gas pressures.
- Entire assembly made of special heat resisting metal, withstanding temperatures to 1550° F. without expansion.
- Furnished with various orifice sizes for proper combustion on any quality natural, artificial or butane gas.
- Entire unit, made up to fit your requirements, completely assembled and factory-tested to insure a quick and correct installation.

SOLD THROUGH SUPPLY STORES EVERYWHERE

INFERNO

THE INFERNO CO.

Makers of Better Steam Equipment

SHREVEPORT, LA.

P. O. Box 1138 115 Ricou St.

dropping the pipe in case of accident. However, the slips can be locked in the retracted position if desired.

When the slips are set around the casing a lug on the end of the operating lever drops into a slot in the latch, making it impossible to open the spider body while the slips are supporting the casing.

Cabot Shops, Inc.
Pampa, Tex.

Frick-Reid Building

In attendance

ARTHUR SWANSON — P. O. GAUT
R. A. BAKER — R. G. BRANDES
H. E. McCRAY — PAUL L. SLONAKER

Equipment displayed:

Cabot T3-3S.—Twin-crank pumping unit, 3,000-lb. capacity with 3-hp. single-reduction reducer.

Cabot T6-6D.—Twin-crank pumping unit, 6,000-lb. capacity with 6-hp. double-reduction reducer and vee attachment for second-well takeoff.

Cabot T12-15D.—Twin-crank pumping unit, 12,000-lb. capacity with 15-hp. double-reduction reducer and bell crank attachmen. for two-well takeoff.

Cabot CT14L-22.5D — Twin-crank pumping unit, 14,000-lb. capacity with 22.5-hp. Cabot double-reduction reducer.

Cabot T14L-20D.—Twin-crank pumping unit, 14,000-lb. capacity with 20-hp. Philadelphia double-reduction reducer.

Cabot S16L-30D.—Single-crank pumping unit, 16,000-lb. capacity with 30-hp. Philadelphia double-reduction reducer and back crank.

Cameron Iron Works, Inc.
Houston, Tex.

84 Texas Building

In attendance

E. L. LOREHN — M. T. WORKS
HERBERT ALLEN — J. M. TEAGUE
SANDY ELDER — GENE TEER
FRANK CROW

Products displayed: Casing heads, ram-type tubing-control heads. christmas trees, flow wings, and mud valves.

New equipment: Employing many of the mechanical features of the company's famous blowout preventer, the new, low-cost Type "LD" ram type tubing-control head serves a fourfold purpose: (1) It provides the ultimate in safe, dependable control during every step of the completion operation; (2) it provides three proven methods of suspending and sealing the tubing string; (3) it obviates the need of a cement retainer when making a squeeze job; (4) it is extremely practical on any reworking.

The company's casing heads and spools featuring several methods of sealing and suspending casing strings will be exhibited. Four methods of suspension and sealing are interchangeable in all the company's heads. Type "M" provides slip suspension and a welding flange with a test-weld feature and a secondary repackable plastic packing seal. Type "J" features slip suspension and a regular welding flange. Type "W" provides slip suspension and a neoprene seal between casing strings. Type "P" features a boll-weevil hanger and a secondary repackable plastic packing seal around the shank of the hanger.

The company's flow wing combines in a single unit the double function of a valve and quick-change positive flow bean. It permits changing flow beans without breaking out a connection and without closing the wing valves. Pressure is shut off by screwing a valve stem against a seat.

Carborundum Co.
Niagara Falls, N. Y.

91-92 Kansas Building

In attendance

S. F. COURTER — S. PHIPPS
G. O. WATSON

The company will exhibit its complete line of grinding wheels developed especially for the grinding of bk bits and other types of tools used in the oil industry. Included will be general-purpose grinding wheels and tool-room grinding wheels. There will also be abrasive paper and cloth used for the important purposes of sanding and finishing of all types of metals.

Competent representatives will be in attendance to give helpful information regarding the correct use of grinding wheels and other abrasive products.

Cardwell Manufac'uring Co., Inc.
Wichita, Kans.

Block F, Arcade Way

In attendance

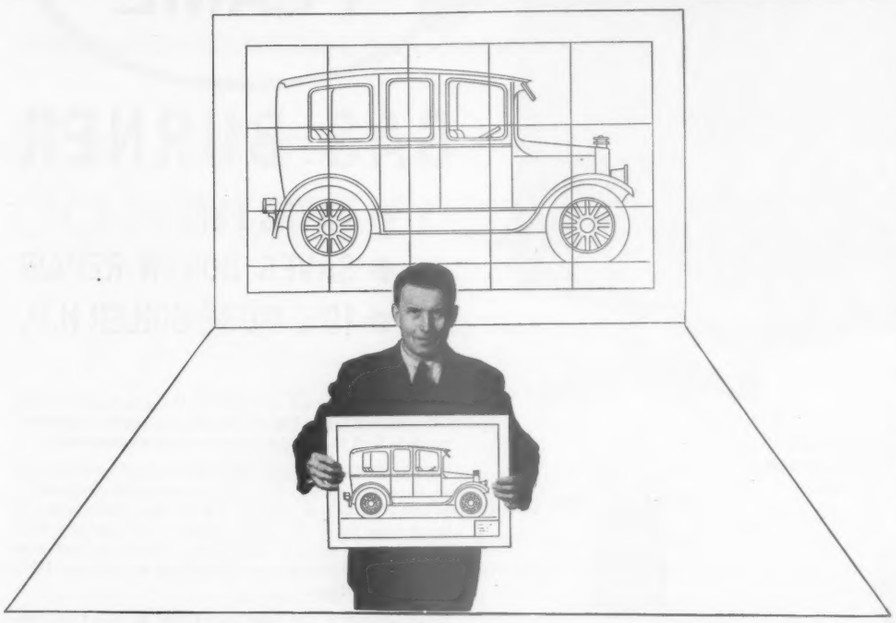
H. W. CARDWELL — ARTHUR HARVEY
HARLAND CARDWELL, JR. — H. F. RYAN
R. B. CHAPIN — B. O. BEEMER
R. M. SMITH — ROY TUCKER
TED MURREY — F. J. OLSON
W. H. HELDENBRAND — J. H. WISE
PAUL LAGO — JACK GRIZZLE
GABOR DE MORVAY — SRECKO KAJFEZ

Tulsa Machinery Co.

CARL F. RENNER — B. F. GRANTHAM
TED MURREY

Three foreign representatives of the company will be in attendance to assist as interpreters and translaters. These representatives speak English, French, German, Italian, Spanish, Hungarian, Slovenian and Serbo-Croatian.

Exhibits: Model Y twin-engine draw works powered with two "Caterpillar" D17000 engines; Model R double-drum hoist powered with a Buda JL-1335 engine; Model L draw works with hydraulic transmission powered with a "Caterpillar" D468 diesel engine, and Model H



"We Filed this Vellux Tracing in 1920—
It's Still Usable Today!"

● "Whenever I hear claims being made for this or that vellum tracing paper, I think of the Bruning Vellux tracing that we filed for the first time in 1920. We've made prints from that tracing dozens of times—it's been in and out of the file more often than I can count. Yet today, it's still usable—still makes good prints—still is intact and flexible. That's proof enough for me that Bruning Vellux is a vellum tracing paper to standardize on!"

* * *

When YOU start using Bruning Vellux, discover for yourself that its value rests not on mere claims, but on *facts* . . . established in drafting rooms—by thousands of users. Bruning Vellux, introduced in 1920, has proved conclusively that it stays transparent . . . stays white . . . does not become brittle with age. Protect *your* valuable tracings by using Bruning Vellux—available in three weights; thin (350T), medium (350), and heavy (350H). A generous working sample is yours for the asking. Just mail the coupon! CHARLES BRUNING COMPANY, INC., 100 Reade Street, New York.

BRUNING *Since 1897*

SPEEDS—SIMPLIFIES—AND PROTECTS A NATION'S DRAFTING

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San Francisco • Newark • Pittsburgh • St. Louis

CHARLES BRUNING COMPANY, *Inc.*
New York: 100 Reade St. Chicago: 445 Plymouth Ct. Los Angeles: 818 Santee St.
Gentlemen: Please send me a free working sample of Bruning Vellux. (Check which desired.)
☐ 350T—Thin ☐ 350—Medium ☐ 350H—Heavy

*Name*_____

*Address*_____

*City*_____ *State*_____ 1024-175-B

single-drum hoist with a Waukesha SRK engine.

Pipe-line equipment on display at the Tulsa Machinery Co. exhibit: Model PC sideboom mounted on a "Caterpillar" D4 tractor; Model PJ sideboom mounted on a "Caterpillar" D7 tractor; and Model V backfiller mounted on a "Caterpillar" D4 tractor. On display at the Caterpillar Tractor Co. exhibit, the Model PG sideboom will be equipped with a blade backfiller.

The company's new "Cardwell" twin-engine draw works (illustrated) is equipped with the speed drive, consisting of air-controlled, friction clutches. This special drive makes it possible to change from any one of 12 speeds without stopping the pump, the automatic cathead, rotary-table drive friction clutch and slush-pump drive. Dual air compressors standard equipment.

There are no engine power takeoff clutches used in this draw works, as each engine drives individually to the speed-drive friction clutches. Both engines may be used to either or both the draw works and pump; or either engine may be used to the draw works or the pump. The same line pull is developed by either one or two engines but when two engines are employed, line speeds are doubled. If one engine fails, the other engine will pull the load of the drill pipe, but at one-half the speed of two engines.

The rotary table is driven from a friction clutch through a gear box to eliminate the unnecessary running of chains and sprockets. Rotary table speeds vary from approximately 20 to 200 r.p.m., even when either or both engines are at full speed on the pump.

Caterpillar Tractor Co.

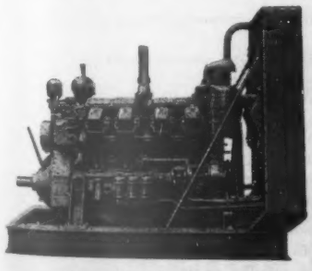
Peoria, Ill.

Blocks C and E

In attendance

ROBERT CULSHAW, in charge
D. A. ROBISON, general sales manager
E. W. JACKSON, general service manager
H. H. HOWARD, manager, engine sales division
G. E. SPAIN, manager, sales development division
C. M. BURDETTE, manager, central sales division
BURT POWELL, news editor
H. W. SMITH, engine sales manager
G. P. FENN, engine sales manager
J. N. BARNES, Texas
A. L. ROBERTSON, Kansas and Oklahoma
C. S. LITTLEPAGE, Oklahoma and Texas
H. G. HARTZELL, engine representative, Kansas
A. A. FORBES, engine representative, Houston
R. R. SLOAN, engine representative, Texas
J. H. GILL, engine representative, Illinois
J. W. MURDOCK — R. E. LORD
W. C. BURGY — J. J. SIMKO
G. R. MERZ — R. T. KETCHAM
H. H. WATERS — D. V. STONE
A. E. PALMER — M. B. FLINT

A complete line of power for oil-field service—from land clearing to pipe-line pumping—will be on display. Occupying Spaces C and E will be its entire line of diesel oil-field engines, ranging from 32 to 180 hp. in size. In addition, a single-cylinder, 5.5-hp., spark-ignition pumping engine and a 135-hp., diesel marine engine will be shown. Featured will be the Caterpillar crude-oil fuel system, shown on a 132-hp. six-cylinder engine. A similar unit will be equipped with the company's attachment for burning natural gas.



Caterpillar diesel D17000

The Caterpillar diesel D17000 oil-field engine is especially designed for its chosen purpose. It has 180 maximum b.hp., a water-cooled exhaust manifold, sectional core radiator, enclosed clutch and the unit is mounted on a sturdy base ready for operation.

Two of the new Caterpillar D7, 75-hp. diesel tractors will be highlighted in the track-type tractor exhibit. One will be equipped with a LeTourneau cable-controlled bulldozer, and the other with a LaPlant-Choate hydraulically operated bulldozer. A Hyster winch will be mounted on one of the machines.

In addition to the LeTourneau, LaPlant-Choate and Hyster companies cooperating in the display, other manufacturers will show their products teamed with, or mounted on, Caterpillar track-type tractors. To point out the variety of jobs these machines will do, Athey Truss Wheel Co. will show its track-type wheels, as well as a D2 tractor-mounted Mobiloader. The Trackson Co. will display a Traxcavator, mounted on a 35-hp. diesel tractor, and will also show a pipe layer on an R5, spark-ignition machine. Killefer Manufacturing Co. will have some of its oil-field equipment on hand, and a Cardwell sideboom will be mounted on a diesel D6 tractor.

Caterpillar products will be seen in many other locations throughout the exposition, where manufacturers of slush pumps, drill rigs, etc., use the company's diesel engines as recommended power for their equipment.

The Hall of Science will contain models depicting the development of the track-type tractor from its earliest conception to the present day. Kept at the Peoria factory, the models are being loaned to the exposition, and will be on display during the show. Among them are the early Holt and Best steam-powered machines, included the huge, wooden-wheeled model designed to prevent packing and slipping on soft California peat soils. The early track-type tractors, the famous Model 60, and modern units will also be shown in miniature.

Cavins Co.

Long Beach, Calif.

26-27 Kansas Building

In attendance

PAUL CAVINS — G. W. MOORE
LEN MOON

The company's cement dump bottom, it is stated, enables operator to place cement at desired point in well without change in proportions of mix. Cement emerges from the full-size opening in the bottom of dump body and is deposited as a compact mass displacing the well fluid as the bailer is raised. It is undiluted and not mixed up with well fluid. No valves or small parts to become clogged—bottom opening is closed by thin, drillable disk which is positively released when bailer is raised, causing cement to flow straight out through the unrestricted opening. Spudding is not required, and there is no danger of delayed dumping or cement being strung out up the hole as bailer is withdrawn. Tripping mechanism is controlled by operator and accidental dumping avoided. Successive loads of cement are placed one on top of the other without cement dump entering the green cement. Construction is simple and rugged, insuring long wear. Also exhibiting the company's tubing swab. Maximum fluid bypass through the mandrel assures more trips per hour and eliminates the hazard of swab being blown up or out of the tubing. The company's perforation swab is designed for low-pressure washing, it hydraulics a series of fluid jets directly into the perforations, thoroughly flushing them and the formation behind the pipe. Connected either to a bailer or to tools on a sand line, it operates automatically when pulled through the perforated section. Excellent for moving sand or mud, or for agitating chemicals. Will also exhibit the hydraulic suction bailer, screen cleaner, and sand pumps (rod type and cable type).

The Central Forging Company

Catawissa, Pa.

29 Oklahoma Building

In attendance

H. BLAIN LACY, Mid-Continent district manager
JOHN A. HILL, Gulf Coast representative
and others

The company has exhibited its wares at the International Petroleum Exposition for the past 8 years

and each year has had something new to offer the oil industry for drilling, producing and pipe-line equipment. This year it offers the Catawissa forged-steel Acme thread union in sizes from 1-in. to 4-in. inclusive in either the hexagonal or lug-nut type. The threads in the nut are full Acme and made coarse for quick opening and closing. The lugs on the lug-nut type present a straight surface to receive the hammer blows. The nut may be tightened with a wrench or hammer, or both. The seat in this union has the same features as the regular Catawissa union; a ball on the male end to a 55° angle on the female end and both carefully ground together by hand, which process prevents any possibility of scoring on the seat. All Catawissa unions are tested under water with 100 lb. air pressure when only hand tight.

The company believes Catawissa lug-nut unions are most efficient quick-action unions for drilling rigs, loading racks, oil-well hookups, and tank-battery service.

Century Electric Co.

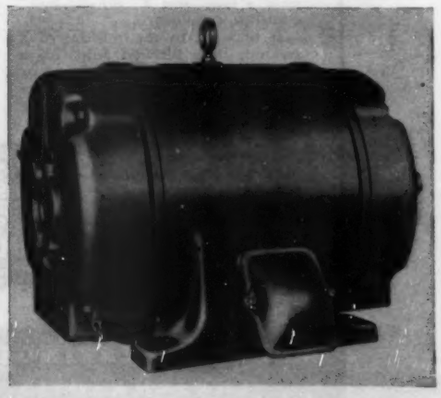
St. Louis, Mo.

Frick-Reid Building

In attendance

FRED POWERS, zone manager, St. Louis and southwestern zone
V. G. COX, district sales manager, Dallas
W. B. HILL, sales engineer, Houston
R. A. JERVIS, sales engineer, Tulsa
OLIVER S. IMES, advertising manager, St. Louis
G. A. LYON, sales engineer, St. Louis
T. E. WITT, district sales manager, Kansas City

Exhibiting its high-torque, high-slip, splashproof motors which the company states save wear on equipment and reduce field pumping costs. It is a high-



starting torque motor that is definite help in cold weather. It has high slip, which means the motor speed pulls down against the impact of peak loads as found in reciprocating pump operation. When the load is light on the pump stroke, the motor speeds up and stores useful energy in the flywheel action of its own

armature and the pumping-unit counterweight. The motor slows down against the maximum power peaks, cushioning the impact and using energy stored in armature and counterweight. This lessens the wear on belts, gears, chains, and other vital parts because of less destructive jolts. It requires less starting current, which reduces the power inrush both at starting and at each peak load. This causes smaller current variations and permits more motors of a given horsepower for the same line capacity. The splashproof housing resists rain, snow, and ice.

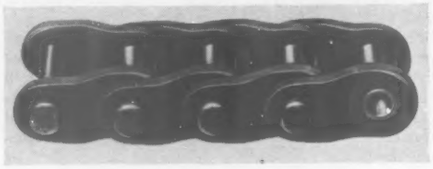
Chain Belt Co.
Milwaukee, Wis.

70-71 Texas Building

In attendance

BRINTON WELSER, vice president
A. R. ABELT, secretary and chain sales manager
R. G. DAVIS, assistant chain sales manager
M. G. JEWETT, chief engineer
J. W. SNAVELY, district manager
JAMES MOORE, Houston office
W. PITTS, Oklahoma City office

Exhibit will display various types and sizes of Rex chain belts and sprockets and several sizes of speed prime centrifugal pumps manufactured for oil-field use. Included will be Rex Deepwell, the chain belt for a wide working range in all types of drilling—highly finished surfaces and precision manufacture make this



3100 series chain belts

chain especially useful on unitized draw works in fields where drilling may range from easy to hard; Rex Champion, a heavier chain with higher ultimate strengths, recommended for extremely hard and deep drilling where excessive loads in the final stages of the deepest holes are the main factors; Rex Universal 3125, a chain belt which is made with the same precision and polished bearing surfaces which mark all Rex oil-field chain belts and which is recommended for tough drilling at higher speeds; Rex roller chain belt, for various types of drilling and drive units in the oil field.

There will also be displayed photographs of the company's mud screens, concrete mixers, material handling conveyors and other products for oil-field use.

One product to be displayed is a new series of even-pitch offset sidebar roller chain belts. These chain belts are a recent development in improved chain design especially for oil-field service. They are made in four sizes—1¼-in. pitch, 1½-in. pitch, 1¾-in. pitch, and 2-in. pitch—and are known as Rex Chabelco 3100, 3120, 3140, and 3160. Rex No. 3100 operates on the same sprockets as manufacturer's standard roller chain belt No. 100, while 3120 conforms to No. 120, No. 3140 to No. 140, and No. 3160 to No. 160. They are made in either single or double strands and can also be furnished in other multiple widths. Their ultimate strengths, yield points, and fatigue limits are identical with manufacturer's standard roller chain belts in like size, and the controlling dimensions—roller diameter, roller face and pitch—of both styles are identical. Consequently, the new series can be substituted for and intercoupled with manufacturer's standard roller chain belts.

MARMON-HERRINGTON *All-Wheel-Drive*
SEISMOGRAPHIC *and* TEST DRILLING TRUCKS

WHEN THE CHIEF GEOLOGIST SAYS *"Get There!"*

● There's been no "stand-still" in geological science. "Guess work" has given way to modern seismographic exploration which plats oil structures almost as accurately as surface surveys.

And that calls for vehicles to carry equipment, oftentimes, where only a man and a "doodle-bug" could go heretofore.

It may be in the middle of a swamp, in a plowed field, on a mountain side, in a virgin forest or trackless desert. When the chief geologist says, "get there," he doesn't mean maybe!

Many types of automotive equipment have been tried for this extremely difficult service—but none has proved as successful as Marmon-Herrington *All-Wheel-Drive* Fords. With full loads, these amazingly sure-footed trucks, passenger cars and commercial cars push and pull their way through deep mud, sand or snow, ford streams, climb incredibly steep hills. And on paved roads they make greater speed with safety than any other vehicles on wheels.

We convert all standard Fords to *All-Wheel-Drive*. Available with standard bodies, or as chassis with cabs, with provisions for mounting any type of oil field equipment. For transporting heavy machinery, pipe, etc., we build a complete line of *All-Wheel-Drive* vehicles with gross capacities up to 70,000 lbs.

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INTERNATIONAL PETROLEUM EXPOSITION
TULSA
MAY 18-25

Write for new literature, just off the press, showing these amazing vehicles *in action*, everywhere. Cable address MARTON, Indianapolis Indiana, U. S. A.

MARMON-HERRINGTON COMPANY, INC.
INDIANAPOLIS, INDIANA, U. S. A.

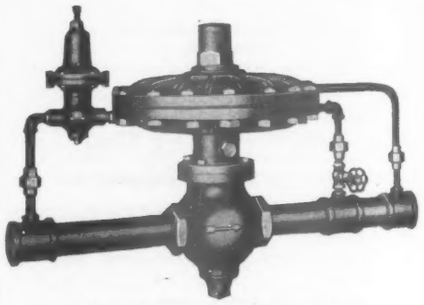
The Chaplin-Fulton Mfg. Co.
Pittsburgh, Pa.

40 Scientific and Technical Building

In attendance

T. H. THORN
J. P. KELLY
W. R. SHIPERLY

Exhibiting pressure-reducing regulators and back-pressure regulators for all services and pressures and



Fulton pilot-loaded reducing regulator

including mostly cutaways showing the latest improvements in construction and design.

Featured in the exhibit is the newest development in pressure control, the Fulton pilot-loaded reducing regulator illustrated herewith.

It is of the differential type and designed for accurately controlling any outlet pressure from 5 to 100 lb.

The well-known remote-control type "Vigilant" liquid-level regulator is also shown, complete with flow valve and connections.

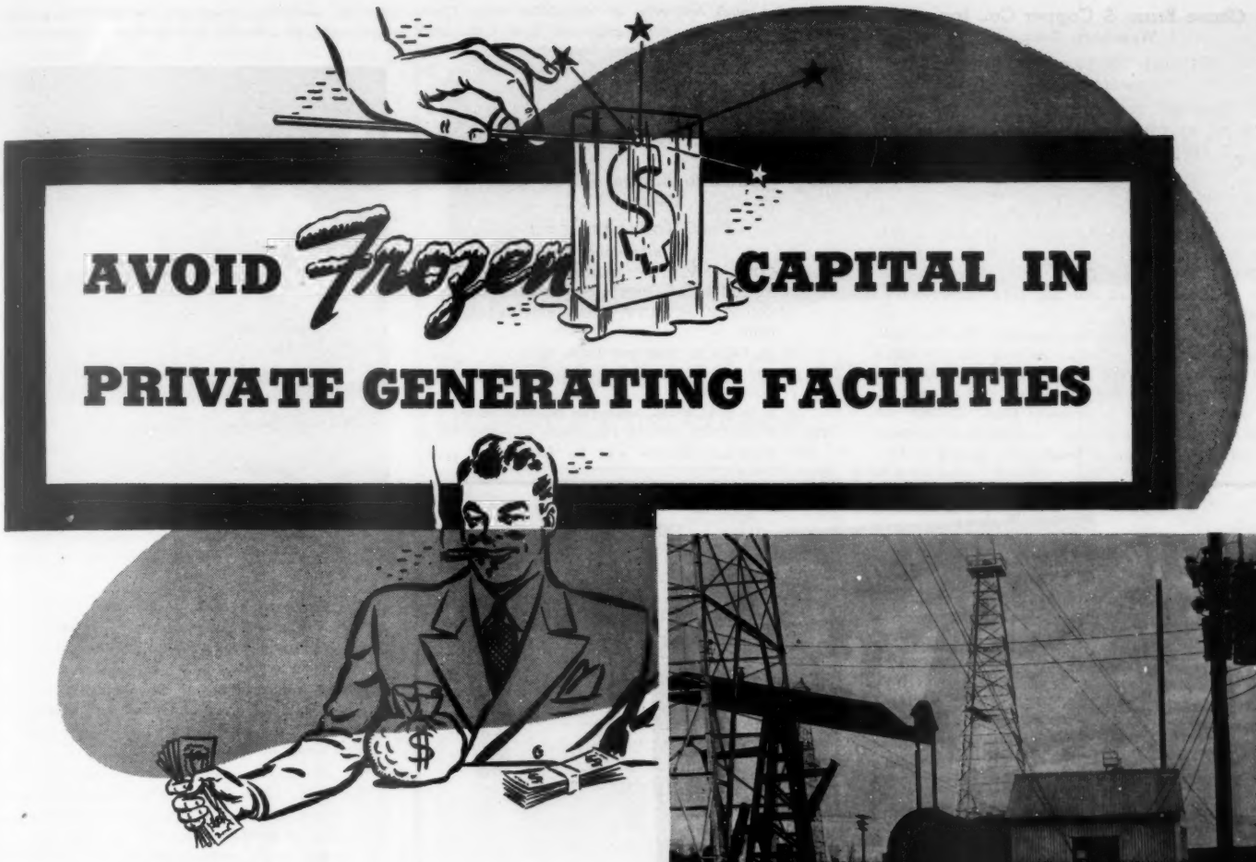
The Chapman Valve Manufacturing Co.
Indian Orchard, Mass.

24-25-26 Texas Building

In attendance

JAMES P. MAHER, assistant general manager
G. L. GRIFFIN, manager oil and gas division
GERALD DILLON, assistant manager oil and gas division
VINCENT T. MALCOLM, director of research
M. C. JACOBS, manager, Tulsa office
ROBERT F. MAHER, sales representative
JAMES KOCH, sales representative
HARVEY L. COTTON, sales representative

Exhibiting a complete line of iron, steel, and alloy valves for use in connection with the petroleum industry. Information relating to development and research work of the Chapman laboratory will also be on display.



AVOID *Frozen* CAPITAL IN PRIVATE GENERATING FACILITIES

This Mid-Continent pumping well is bringing its operator BIGGER returns . . . and his power investment has been turned into available capital! Utility Electric Power, of course.

AVOID . . .

- **Power Plant Capital Investment**
- **Excessive Maintenance and Fixed Costs**
- **Extreme Depreciation of Equipment**

EFFICIENT POWER WITHOUT CAPITAL INVESTMENT! Operators everywhere are getting the use of more capital funds than ever before, with Utility Electric Power. For this modern power backs an outstanding record of performance with the greatest profit advantage known—the assumption of power capital investment by the power company!

THE PRACTICAL VALUE of this great Utility Electric Power feature is obvious. Now, operators are finding more capital at their disposal, wherever this modern power is in use. And this most important saving is followed by greater economy, *plus* added efficiency . . . for Utility Electric Power costs less to install, maintain and operate.

POWER EFFICIENCY GOES UP, with less downtime . . . instant starting and stopping. Power charges go *down*—with Utility Electric Power, you pay only for power used. Smooth, silent, extremely flexible, Utility Electric Power makes equipment more portable—gives it higher salvage value, longer life.

IT COSTS YOU NOTHING to get details on how Utility Electric Power releases your power capital dollars for use elsewhere. Simply consult your nearest electric company—today—for facts that may show you the way to modern profits . . . modern efficiency!

PROFIT! BY USING Utility ELECTRIC POWER

The Petroleum Electric Power Association is the outgrowth of a desire on the part of electric power companies to render greater service, through cooperative effort, to the Petroleum Industry.

Use Utility Electric Power

PETROLEUM ELECTRIC POWER ASSOCIATION

Chase Brass & Copper Co., Inc.
Waterbury, Conn.

134 and 135 Texas Building

In attendance

V. MEYER — L. J. VOGLER
N. W. MITCHELL — W. J. WEIR
J. J. VREELAND — T. M. RIANHARD

Chase "Spiral-Fin" tube, a recently developed product, will be displayed. For cooling engine-jacket water, condensing hydrocarbon vapors and steam, and cooling lubricating oils, "Spiral-Fin" tube is made of antimonial admiralty tubes with copper fins. Antimonial admiralty is a patented Chase alloy which has the unusual characteristic of resisting both dezincification and sulfur corrosion.

Chase "Spiral-Fin" tubes have smooth, flat fins with no wrinkles to collect moisture or dirt and cut down rate of heat transfer. The fins are reinforced by wires which also form a larger contacting surface and increase capacity of fins to transfer heat. Another advantage is that ratio of primary to secondardy surfaces can be adjusted by varying height and spacing of fins.

To make quick deliveries of "Spiral-Fin" tube, Chase carries both ⅝-in. by 0.035 gage and ¾-in. 0.035 gage tubes in stock. For these tube sizes there are specific standard stock fin sizes ready to be assembled to the tube, in accordance with the following table of sizes:

Tube sizes, in.	Fin o.d., in.	Fin thickness
⅝ by 0.035 gage	1¼, 1⅜, 1½, 1¾	0.008, 0.010, 0.012
¾ by 0.035 gage	1½ and 1¾	0.008, 0.010, 0.012

Chicago Bridge & Iron Co.
Chicago, Ill.

85-86 Texas Building

In attendance

MILO E. SMITH, advertising manager
D. E. LARSON, development engineer
GEORGE E. JEWETT, engineering department
D. A. LEACH, manager Tulsa office
H. B. MURPHY, district sales manager, Dallas, Tex.
J. R. DONALDSON, manager Houston office

The company will have a two-booth space 10 by 20 ft. The principal feature will be four large photo murals showing prominent installations of Hortonspheroids. In addition it will show a panel consisting

100,000-bbl. Hortonspheroid for the storage of natural gasoline under 15-lb. per sq. in. pressure. This installation was built by the Chicago Bridge & Iron Co.

of one photograph each of Hortonspheroids, Hortonspheres, Wiggins pontoon roofs, Wiggins breather roofs, Wiggins balloon roofs, Wiggins balloon systems, and refinery vessels.

A large album of tested Hortonspheres photographs will be displayed on a table and an automatic baloptican will throw 60 different installation views of oil-storage tanks on a screen.

The principal item of interest to operating men will be an actual cross-section of a welded tank mounted on a large panel with a description of the weld at each joint. A similar panel will be made up showing the various welds used in each joint of the Hortonspheroids.

The American Lumber & Treating Co., affiliated with Chicago Bridge & Iron Co., will display a panel illustrating the value of treating lumber with Wolman salts.

Chicago Metal Hose Corp.
Maywood, Ill.

4 Kansas Building

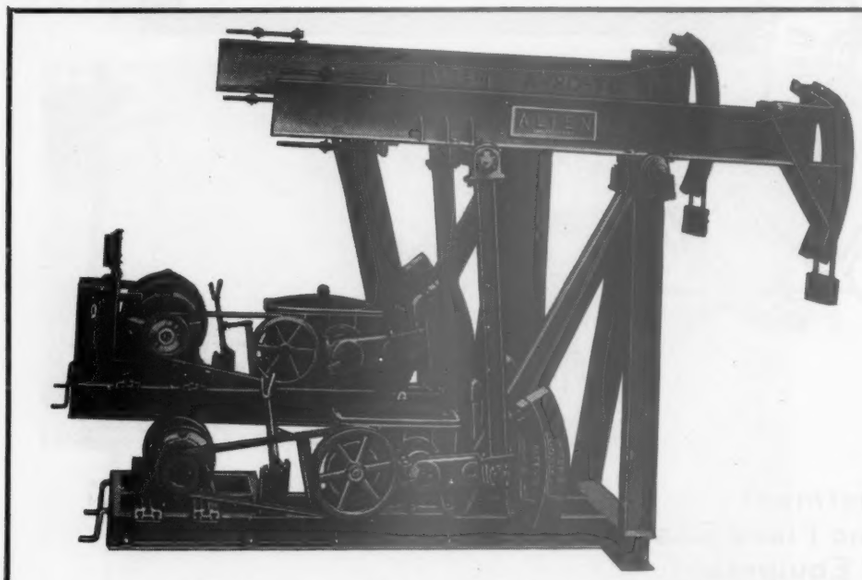
In attendance

WARNER LEWIS, Tulsa representative
HAROLD J. GIBSON, sales engineer
A. S. KELLER, sales manager

The main products displayed, which should be of interest to the petroleum industry, are as follows:

Rex-Weld flexible connections for pumps
Loading and unloading hose
Insulated steam hose
Diesel exhaust hose
Avioflex hose
Stainless-steel Rex-Bellows
Stainless-steel Bellows

Rex-Weld hose is described as ideal for use as a flexible connection for pumps, tanks, centrifuges, burn-



There's An ALTEN'S PUMPING UNIT Made To Fit Your Needs

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INTERNATIONAL PETROLEUM EXPOSITION
TULSA
MAY. 18-25

In Block 7 between W. Virginia Avenue and Beville Lane

Both of these units have been thoroughly tried and tested in the Illinois field. A still larger unit, A-140-TC, is now being constructed for deeper wells.

Note These Features:

1. Counterbalanced Cranks.
2. Heat-Treated Steel Gears in Reducer.
3. Self-Aligning Roller Bearings in Upper and Lower Pitman Connections.
4. Heavy Steel Forging Equalizer.
5. Reliable Braking Mechanism.
6. Timken Bearings in Reducer.
7. The A-80-TC can be furnished with Underpull Attachment for Second-Well Pumping.

ALTEN'S
Foundry and Machine Works

Established in 1889

LANCASTER, OHIO, U. S. A.

BRANCHES:
2120 Rothwell St., HOUSTON, TEXAS
208 E. Main St., SALEM, ILLINOIS

UNIT REPRESENTATIVES:
Charles L. Spilman, 1709 S. 12th. St., MT. VERNON, ILL.
C. R. (Bob) Stahl
Care: BROWNING HOTEL, GRAND RAPIDS, MICH.

EXPORT OFFICE: 342 Madison Ave., New York City

ers, and numerous other applications. It is of exclusive one-piece corrugated construction, flexible, and remains leakproof at high temperatures and pressures.

RT15 flexible hose is used for the conduction of steam, water, unloading oils and chemicals from tank cars and oil under pressure. It is made in strict accordance with U. S. Navy specification.

Avioflex hose is outstanding for its flexibility and resistance to fatigue under vibration. It is desirable for fuel and oil lines on engines and machine tools.

Diesel exhaust hose is used as a connection for absorbing engine vibration in exhaust lines and in taking care of movement due to flexible mountings.

Rex-Bellows are made from 18-8 stainless steel and are corrosive resistant, have minimized fatigue factor, extreme flexibility with strength of stainless steel, and many other advantages.

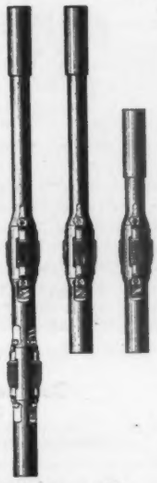
Chicago Pneumatic Tool Company
New York

14-15 California Building

In attendance

E. L. MILLER — EMIL DUFEK
D. P. TARPENNING — G. E. BEHNKE
K. M. JESSUP — R. C. MURRAY

The booth, a complete unit, is decorated with bright red, yellow, and blue striped awning which even among the gay decorations of the exposition will be rather outstanding. Within the booth, the company will exhibit C.P. bits, reamers, reaming bits and other drilling tools.



The C.P. reamers illustrated were first displayed at the eighth International Petroleum Exposition in 1934, and since have gained and held a reputation of outstanding improvement.

Although C.P. drilling tools are well known throughout the Mid-Continent and coastal fields, they will be very interesting to visitors from oil fields where they have not yet been introduced. Arrangements are now being made for representatives to handle Chicago Pneumatic "Better Drilling Tools" in every oil field in the world.

Chiksan Tool Company
Brea, Calif.

62-63 California Building

In attendance

EARLE R. ATKINS, sales manager
LEE LAIRD — DICK WINDER

Exhibiting the first 5-in. all-steel rotary hose ever shown in the Mid-Continent. In addition, the exhibit described as the most complete ever staged by the company, includes a 4-in. all-steel rotary hose, circulating heads, mud guns and the complete line of Chiksan ball-bearing swing joints, featuring the new high-temperature joints just announced by the company. Working models showing the application of Chiksan counterbalance swing joints to modern loading racks are also displayed.

Clark Bros. Co.
Olean, N. Y.

Block U

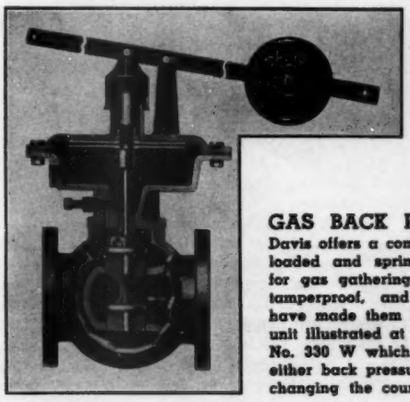
In attendance

C. P. CLARK, president
J. B. O'CONNOR, vice president
J. N. MacKENDRICK, chief engineer
RUSSELL PYLE, diesel engineer
F. W. LAVERTY, technical department
V. R. WITTICH, export manager
G. I. SCHWALLBACH, European representative
D. K. HUTCHCRAFT, Mid-Continent manager
F. R. HAYES, Houston manager
G. W. PROBST — WILLIAM ROEVER
T. W. WEBB — BOYD KOEPKE
V. E. FORD, manager service department

Exhibiting one of the company's latest developments, an eight-cylinder Model RA-8 gas engine-driven "Angle"

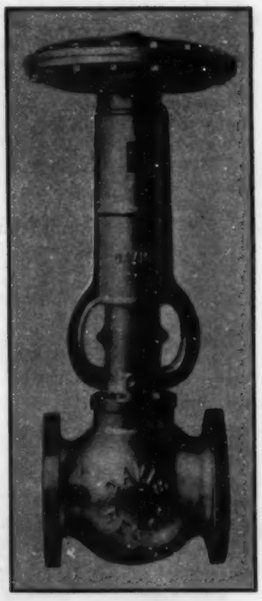
Specially Designed for the Oil Industry

Regulators and Controllers for Liquids and Gases

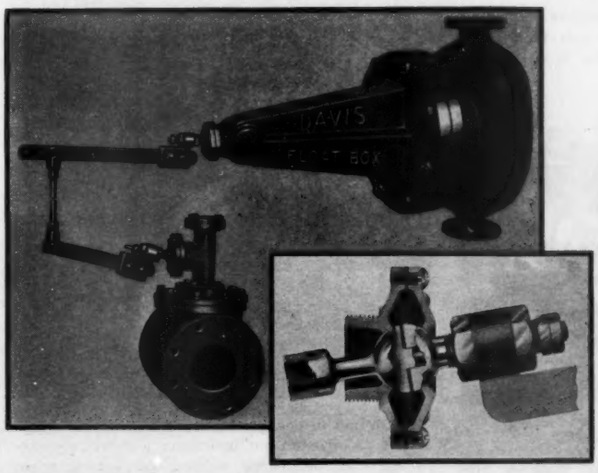


PRESSURE REGULATORS. The Davis line of pressure reducing and regulating valves is complete! There is a size and type for every purpose. No. 16, shown at the right, is suitable for steam, air, gas, water or oil.

GAS BACK PRESSURE VALVES. Davis offers a complete line of both weight-loaded and spring-loaded field regulators for gas gathering systems. Weatherproof, tamperproof, and super-sensitive features have made them leaders in all fields. The unit illustrated at the left is the well-known No. 330 W which is readily adjustable for either back pressure or vacuum, merely by changing the counterweight.



DIAPHRAGM MOTOR VALVES. Davis diaphragm motor valves include both direct and reverse acting types for steam, air, gas, oil or water lines using pressure, temperature or liquid level as the controlling factor. A wide choice is offered in materials of construction, type of inner valve, and such features as weatherproof construction, ball bearing adjusting nuts, tamperproof covers, etc.



LEAKPROOF FLOAT BOXES! Davis' patented "DIABALL" packless head (see inset) is applied to both float boxes and control valves. In addition to ending maintenance nuisance this construction gives added safety in handling violatile and inflammable material. The unit shown above is a No. 161 D Float Box actuating a No. 66 B balanced valve.

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INTERNATIONAL PETROLEUM EXPOSITION
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BOOTH 46
Scientific and Technical Bldg.

DAVIS REGULATOR COMPANY
2543 SOUTH WASHTENAW AVE., CHICAGO, ILL.

MID-CONTINENT AND GULF COAST REPRESENTATIVE: Westcott & Greis, Inc., Tulsa, Dallas and Houston. WEST COAST REPRESENTATIVE: Bert W. Paul, Los Angeles.

compressor. This machine will be equipped with all of the latest auxiliary equipment developed in the past 2 years to improve the performance and output of the "Angle." The engine will be shown with forged-steel compressor cylinders designed for operation up to 5,000 lb. per sq. in.

Also to be shown will be one of the new Model F eight-cylinder convertible gas or diesel engines. This engine has many modern improvements and is very attractive in appearance, being fully enclosed, compact and with clean lines. This engine features the new development known as the cetane selector. It is readily convertible from gas to fuel oil and is designed for drilling or generator service.

Clark Electrical Supply Co.
Tulsa, Okla.

47 Kansas Building

Featuring electrical conductors adaptable for the oil industry. Crescent Wire & Cable Co. has prepared for its distributor, Clark Electrical Supply Co., a special display of these cables showing the cables immersed in oil and a chart giving data on the resistance of these cables over the ordinary ones.

Also displayed: Spang-Chalfant, Inc.'s rigid conduit; Hunter-Century fans and motors; Pass & Seymour, Inc.'s Despard wiring devices; Star Expansion Bolt Co.'s toggle bolts, expansion shields; Goodrich Electric Co.'s reflectors; Appleton Electric Co.'s Unilet line of explosion-proof fittings; Square D line of safety switches, all factories being represented in the Tulsa area by Clark.

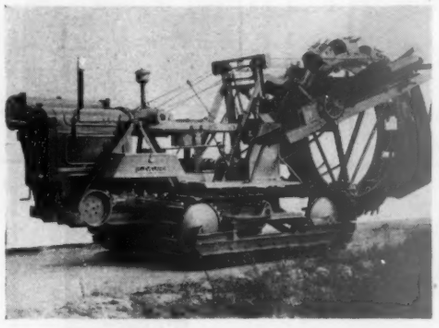
Cleveland Trencher Co.
Cleveland, Ohio

Block P

In attendance

V. S. PENOTE J. A. PENOTE
A. R. ASKUE

Exhibiting two new pieces of pipe-line equipment, the company's Model 90 backfiller and pipe crane, and Model 140 pipe-line ditcher. The Model 90 can



Model 140 pipe-line ditcher

handle backfilling on small or large diameter pipe lines. It is a one-man operated, continuous travel backfiller. This latter feature saves time and greatly speeds up the work. It can be set to travel steadily in either direction at any one of a large number of speeds instantly selected. It can rapidly be converted from backfiller to pipe crane. It is capable of handling loads of 3,500 lb. 10 ft. out from the track, and at a distance of 4 ft. from the edge of the track can lift a load of 10,000 lb. The boom, which is of latticed-type construction, readily telescopes and is adjustable from 13 to 20 ft. in length. In addition this machine can be used to lower in slack loops, load and unload pipe, line up pipe for tieing-in purposes and drawbar work.

The Model 140 pipe-line ditcher (illustrated) has been especially designed for pipe-line work and incorporates many new features, including wider crawler tracks which give it greater stability and better traction; wider digging widths, enabling it to dig trench 18 to 30 in. wide and up to 5½ ft. deep; 300 per cent stronger boom and frame, and higher ground clearance which is especially valuable when working over rough right-of-way and traveling up and down grades.

Coffing Hoist Co.
Danville, Ill.

27 Oklahoma Building

In attendance

RAY DOAN, southwestern district sales manager
HARRY N. HAYES, general sales manager

Display will consist of all the different models of the "Safety-Pull" ratchet lever hoists that are so well known and widely used in oil-field construction and maintenance work. Also on display will be the "Quik-Lift" electric hoist, the "Power Master" gravity lowering chain hoist, the Model "C" spur-gear chain hoist, differential hoists, trolleys and load binders. Coffing hoists are built in capacities ranging from ⅜ to 15 tons and this company reports that the International Exposition has always been a business getter for them.

Compressed Industrial Gases, Inc.
Chicago, Ill.

96-97-98 Oklahoma Building

In attendance

C. T. PRICE T. O. DRINKWATER
F. M. WYMAN D. G. DAYTON
E. A. RANDALL D. E. LeCRONE
L. E. LIPPINCOTT J. D. TURNER
E. W. HANNA J. V. MARTIN
A. C. FLACK A. R. CLAYTON
GLENN GAMMON C. L. LOGAN
A. G. COATES F. E. MOSELEY
C. R. GALLOWAY R. G. HARRISON

Exhibiting in operation compressed industrial gases, oxygen, acetylene, and hydrogen; a newly developed cutting machine; Victor welding and cutting apparatus; Hollup electrodes; welding machines; and welding equipment and supplies.

Continental Motors Corporation
Muskegon, Mich.

Block P

In attendance

B. F. TOBIN, JR., executive vice president and secretary
F. T. GOULD, sales promotion manager
S. O. WOMACK and WILLARD B. MUSE, both of Oriental Transmission & Packing Co., Dallas, distributors for New Mexico, Texas, and Louisiana
H. E. MUNSON and GEORGE L. REID, of Diesel Supply Co. of Joplin, Mo., distributors for Oklahoma, Kansas, and Illinois

Exhibit will consist of representative models of the company's lines of oil-field power units and engine-driven generator plants for power and lighting purposes. Of special interest will be a dual engine-driven 100-kw. generator plant, completely equipped for operation on natural gas and suitable for taking care of

all power requirements and light up to the rated capacity.

The company is also planning to show a new package power plant, designed for full automatic operation on air-conditioning and refrigeration systems, in operating condition on natural gas.

Another item of interest will be a small, 50-hp., horizontally-opposed, air-cooled, aircraft engine, which on October 29, 1939, established the world's all-type plane and engine endurance flight record of 726 hours of continuous flight. Although this engine turned 84,000,000 revolutions and flew the equivalent of 55,000 miles twice around the world during the 30 days it was in the air, an inspection following the flight showed the engine to be in excellent operating condition. It is proposed to show this engine just as it was removed from the ship.

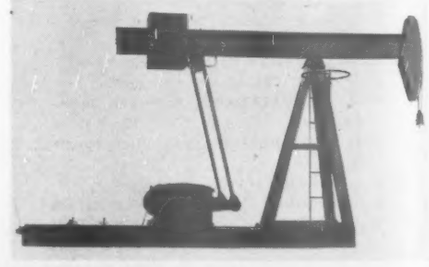
Continental Supply Co.
Dallas, Tex.

Continental Supply Co. Building, Block 6

In attendance

W. J. MORRIS, president
F. M. MAYER, vice president
F. I. BRINEGAR, vice president
W. G. FITZPATRICK, manager of sales
N. A. ENDICOTT, assistant manager of sales
J. A. MUSSLER, manager tubular sales
CHARLES W. KING, manager pipe department
A. J. OLSEN, chief engineer
J. C. SLONNEGER, assistant chief engineer
R. L. MIDDLETON, director of purchases
C. N. SWANSON, district manager
F. H. THRAILKILL, district manager
E. N. WOOD, district manager
R. A. BREWER, district manager
C. H. FISCHER, district manager
M. D. SMITH, district manager
D. A. DAVIS, district sales manager
C. H. MEYER, district sales manager
F. L. CONVERS, vice president, foreign sales subsidiary

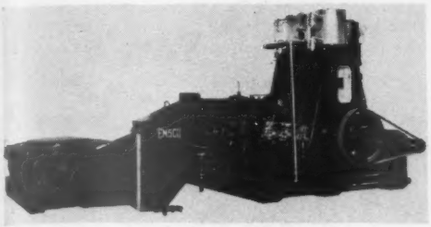
An interesting display of drilling and production equipment produced by the affiliated manufacturing



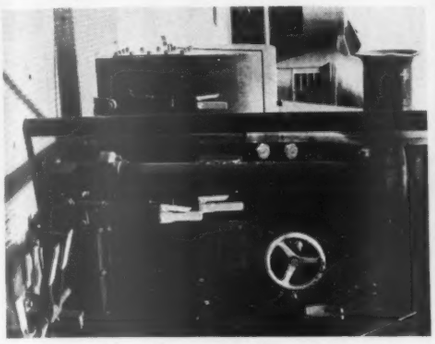
Continental CD58-B44TH4 geared pumping unit

companies of Continental Supply Co. will be displayed at Continental's building and adjacent property on Drake Drive.

A new extra-heavy steam drilling rig will be rigged up and in operation. The working of all component parts will be readily exposed for inspection and study; a special glass-enclosed box will permit visitors to see fluid action through the drill string and bit. Individual pieces of equipment used on the rig are discussed below as listed under their respective manufacturers. In addition to this heavy-duty rig, an Emsco P-150-46 drilling unit for shallow depths powered



Emsco auxiliary transmission JBS rotary machine and 9½ by 8 Gardner-Denver vertical engine



Emsco hydro-brake valve for regulating speed of hydromatic brake

with an R-8-I Climax engine will interest visitors who are interested in shallow-drilling areas. Three oil-well pumping units covering a range of sizes from shallow to deep wells that incorporate the latest design will be displayed. Pipe-line pumping units particularly adapted to gathering systems, general line work, or pipe-line stations will also be displayed.

In the Continental Building interesting displays of tubular products, sucker rods, valves and fittings, belting, packing, hose, wire rope, and cordage will be of additional interest.

The description of the major items of equipment to be displayed by each of the affiliated companies follows:

Broderick & Bascom Rope Co.

St. Louis, Mo.

In attendance

FRED ZIMMERMAN, sales manager
M. R. GALE, Mid-Continent sales manager
E. E. DEACON, salesman
L. R. SAUNDERS, salesman
J. GRUBB, salesman
A. E. GLICK, engineer

A display of samples of wire rope used especially in the oil industry will be found in the Broderick & Bascom booth. The preformed construction of Broderick & Bascom wire line as used on drilling lines, sand lines, rod lines, and winch lines will be thoroughly explained. A replica of a wire-rope manufacturing machine to illustrate factory methods of manufacture will be displayed.

Clayton, Mark & Co.

Chicago, Ill.

In attendance

ORA C. COX, manager Union sales
BRUCE COX, sales representative

An important improvement on the well-known Mark handlebar union is the new Acme high-speed thread. This shortens the time in connecting and disconnecting, permitting making-up and breaking-down with greater ease. Clayton, Mark & Co. will also display samples of their Mark Hydro and Petro unions as well as the handlebar check union.

Climax Engineering Co.

Clinton, Iowa

In attendance

E. F. DEACON, president
H. A. HANSEN, representative

The Climax R-8-I drilling engine will be used as a prime mover on the Emsco P150 portable drilling unit, and will also be displayed as part of a direct-connected slush-pump unit in connection with a 7¼ by 12 Gradner-Denver slush pump. Climax drilling engines are especially designed and built for rotary-drilling service. They utilize both butane and natural gas as fuels and are equipped with dual ignition, electric starting, telegraphic throttle control, and automatic safety devices. They have unusual ability to "hang on" at low speeds and have the performance characteristics to make hole quickly and profitably.

Dayton Rubber Manufacturing Co.

Dayton, Ohio

In attendance

K. H. GLANTON, vice president
T. C. DAVIS, sales manager
E. F. SPORE, district sales manager
R. WETZEL, advertising manager
J. HERSHEY, assistant advertising manager
R. HOHMAN, sales representative

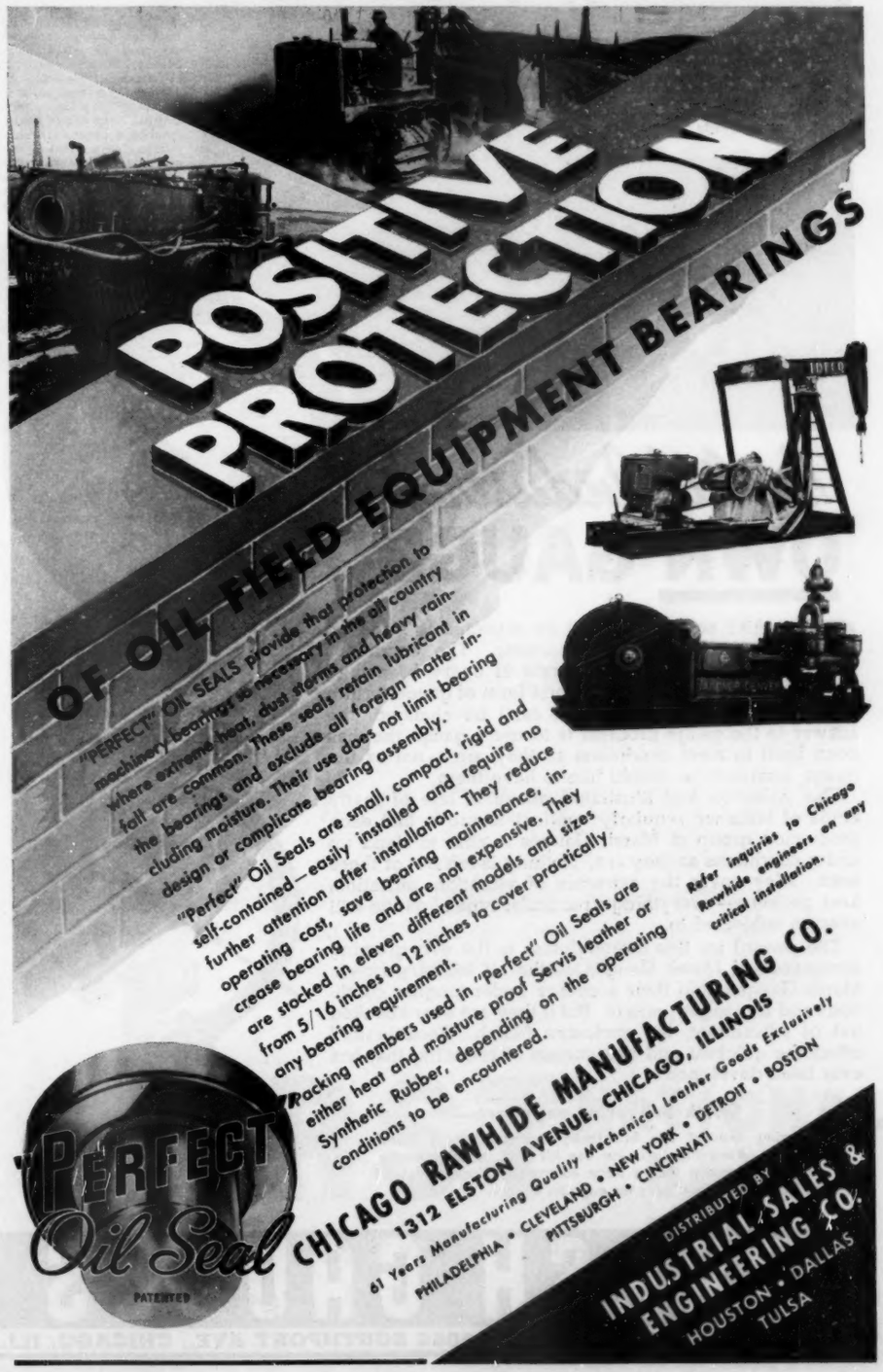
Samples and photographs of Dayton V-belts and the famous Dayton cog rope will be displayed. Although these products are well known to oil-industry users, the explanation of factory-manufacturing methods will be most interesting.

Emsco Derrick & Equipment Co.

Los Angeles, Calif., and Houston, Tex.

In attendance

H. H. GLEN, president


POSITIVE PROTECTION
OF OIL FIELD EQUIPMENT BEARINGS
"PERFECT" OIL SEALS provide that protection to machinery bearings as necessary in the oil country where extreme heat, dust storms and heavy rainfall are common. These seals retain lubricant in the bearings and exclude all foreign matter including moisture. Their use does not limit bearing design or complicate bearing assembly.
"Perfect" Oil Seals are small, compact, rigid and self-contained—easily installed and require no further attention after installation. They reduce operating cost, save bearing maintenance, increase bearing life and are not expensive. They are stocked in eleven different models and sizes from 5/16 inches to 12 inches to cover practically any bearing requirement.
Packing members used in "Perfect" Oil Seals are either heat and moisture proof Servis leather or Synthetic Rubber, depending on the operating conditions to be encountered.
Refer inquiries to Chicago Rawhide engineers on any critical installation.
"PERFECT" Oil Seal
PATENTED
CHICAGO RAWHIDE MANUFACTURING CO.
1312 ELSTON AVENUE, CHICAGO, ILLINOIS
61 Years Manufacturing Quality Mechanical Leather Goods Exclusively
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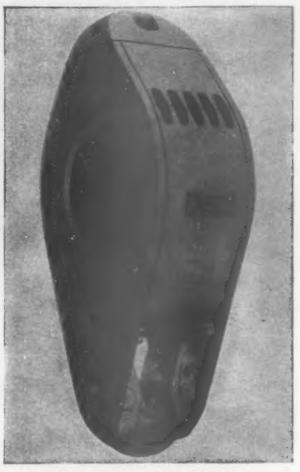
G. W. WALTON, vice president and sales manager
W. D. DAVIDSON, vice president and chief engineer
DAVE SMITH, assistant chief engineer
WILLIAM C. KINDER, sales manager, California D & B division
J. ZUMETA, engineer
PAUL COURTNEY
L. B. ANDERSON, engineer
S. W. WEBSTER, assistant sales manager
C. L. LAMKIN
H. J. JOHNSON
L. W. STAHL
E. M. HORN

The 136-ft. Emsco bulge type derrick mounted on a substructure will be an identifying feature of the entire Continental exhibit. Built around this derrick and in actual operation will be the heavy-duty steam drilling rig. Emsco equipment to be included on this rig will be the new ED4-60L draw works. This draw works has steel-fabricated posts, extremely short bearing centers and built-in bearing boxes to provide an especially strong and rigid unit. All drives throughout pressure section are lubricated and totally enclosed. The 60-in. brake rims are water cooled with a force-feed circulating system. Conversion from three to four speed operation, or vice versa, can be made conveniently at any time. A hydro-brake valve is a new development which controls the water level in the hydromatic brake thereby governing the speed of braking.

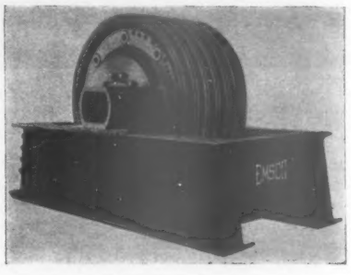
The Emsco P150 draw works also exhibited meets the demand for an inexpensive, light, easily handled drilling machine for depths not exceeding 3,000 ft. With the Climax R-8-I engine, the unit is exceptionally dependable and is capable of completing hole with minimum time and expense. One of the unique features of the heavy-duty steam rig previously mentioned will be the Emsco auxiliary engine drive. With this transmission, the auxiliary steam engine can operate either the rotary machine or may be combined with the main engine to afford reserve power when hoisting extra-heavy drill strings.

The Continental CD38-32TH5 unit pumper displayed in Continental's outside exhibit is designed for use on light wells where a low-priced yet dependable single unit is required.

The Emsco JBS-20½-in. rotary machine is the outcome of years of extensive experience in the manufacture of drilling equipment. The new type "M" crown block and traveling blocks will interest the drilling man who has operations in the deeper areas. Of extremely narrow design, greater clearance provides more space for pipe racking, and operations in general are speeded. The body of the Emsco Type H swivel to be exhibited is a heavy one-piece steel casting so designed that all bearings are rigidly supported to eliminate destruction under heavy loads.



Emsco traveling block



Emsco crown block

Similar design is used in the CD58 unit pumper which is displayed as a companion unit to the CD38-32TH5 unit pumper. It is a larger size unit, capable of satisfactorily pumping medium-depth wells.

D & B Pump Division

In attendance

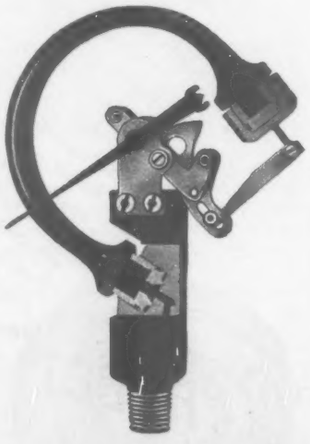
R. B. STANSBURY, manager of sales
W. G. REED, representative
C. C. STOUT, representative
R. M. BOLIEAU, assistant manager of sales
J. C. RILEY, JR., representative
L. G. WOOD, representative
C. W. LIGON, representative
D. A. FREE, representative
D. P. MALEY, representative
G. I. CALVERT, metallurgist

Assortments of numerous D & B pumps with cutaway parts to explain their operation will be featured by this company which makes a specialty of producing equipment to handle wells that are difficult to pump. Various types of D & B pumps to overcome these unusual problems will be exhibited and explained. In addition, a general line of pumping equipment, including both surface and subsurface accessories, as well as sucker rods and pull rods will be shown. Scientific metallurgical equipment and instruments used in the laboratory supervision of D & B's manufacturing process will also be displayed. Production men from every field will find some part of the D & B exhibit that will interest them.

• On this special machine the bourdon tubes of Marsh Gauges are given a fatigue test that out-does any condition which can occur in actual service — just one of many equally exhaustive tests.

• The broad Marsh line includes gauges especially designed for blenders, boilers, burners, capping, Christmas trees, columns, heaters, hydrogen units, instrument panels, piping, pumps, Reid vapor bombs, scrubbers, separators, slush pumps, stills, tanks, towers, water feeders, and all other applications in refineries, natural gasoline plants, chemical plants and drilling units.

• The Marsh Refinery Gauge is illustrated above; its rugged "Mastergauge" movement below. Here is a unit that can take it.



The Oil Industry's
OWN GAUGE

ORDINARY equipment can't be expected to stand up under *extra*ordinary conditions. The conditions under which gauges must operate in every branch of the oil industry are about the worst form of gauge torture known. Since these conditions can't be changed, the answer to the gauge problem is to use a gauge that has been built to meet conditions as they are — not as the gauge manufacturer would like to have them.

The pulsation test illustrated above is one of many kinds of tests we regularly conduct to prove that each production group of Marsh Gauges is able to stand up under conditions as they are. Nothing is left out of these tests. They cover the extremes of vibration, pulsation, heat, pressure—everything a particular type of gauge will ever be subjected to.

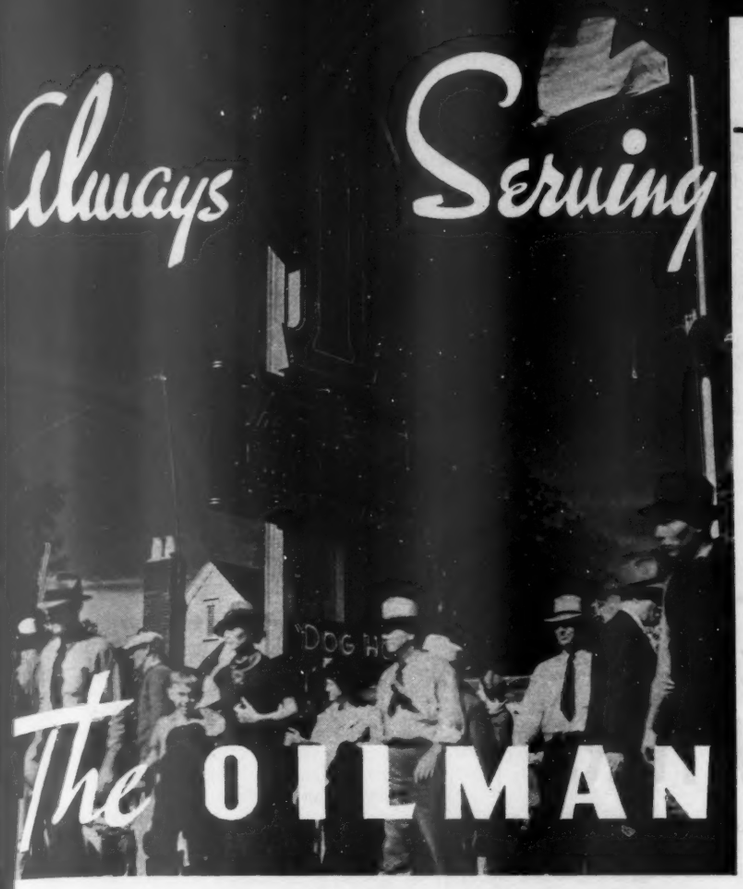
The reward for this thoroughness is the ever-growing acceptance of Marsh Gauges as the oil industry's own. Marsh Gauges hold their accuracy under tougher conditions and for longer periods. But if they are ever knocked out of adjustment, the exclusive Marsh "Recalibrator" offers the quickest and best means of re-setting that has ever been developed.

Quick deliveries anywhere—

Growing demand has broadened the stocking of Marsh Gauges. Your supply house can fill your order promptly. To doubly assure this, a large emergency stock is carried at Houston to back up your supplier's stock.

MARSH GAUGES

JAS. P. MARSH CORPORATION, 2065 SOUTHPORT AVE., CHICAGO, ILL.



Make the First National "DOG HOUSE" your headquarters on the Exposition grounds. First National officers will be on hand to extend an old fashioned welcome and render every courtesy.

1st

AT THE INTERNATIONAL PETROLEUM EXPOSITION

AGAIN *First National* WILL BE IN THE *Center* OF THE SHOW

Just as First National experience has facilitated OIL FINANCING since the discovery of oil in the Mid-Continent.

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B. F. BARNETT
Vice President
J. P. BYRD, Jr.
Vice President
F. L. DUNN
Executive Vice Pres.
A. L. FARMER
Real Estate
H. N. GREIS
Oil Producer
ELMER HALE
Pres., Hale-Halsell Co.
C. A. KING
Vice President
A. I. LEVORSEN
Geologist
JOHN D. MAYO
Mayo's, Inc.
R. OTIS McCLINTOCK
President
F. B. PARRIOTT
Oil Producer
W. G. SKELLY
Pres., Skelly Oil Co.
R. ELMO THOMPSON
Sunray Oil Corp.
GARY Y. VANDEVER
Vandevers'
W. K. WARREN
Pres. Warren Pet. Corp.

The FIRST NATIONAL BANK and Trust Company of Tulsa

1895 ★ ★ ★ 1940

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

Fairbanks, Morse & Co.

Beloit, Wis.

In attendance

H. J. RENKEN, manager oil-field division
F. P. GRUTZNER, assistant chief engineer
M. B. MacNEILLE, manager hydraulic and dealer department
W. MOORE, manager general diesel sales
F. J. CINATL
F. D. RATCLIFFE, salesman
H. D. GOBBLE, salesman
W. S. JOHNSON, salesman

A common sight in almost every field has been the well known Fairbanks-Morse Type "Z" engine. Now completely redesigned and modernized the visitor to Continental's exhibit will find the new Type "Z" engine retaining the lines of the original model, but with new features to give it greater dependability and to widen its range of oil-field service. Some of the improvements include an automatic vapor-cooling system, splashproof enclosed lubrication system, diachrome valves with alloy exhaust insert seats, improved type governor, combination gas-gasoline carburetor, and extra heavy flywheels.

This improved "Z" engine will be known as the "ZC" 118 and will be mounted on an Emsco CD38-32TH5 gear pumping unit. In addition, Fairbanks-Morse 12-in. stroke power pump will be exhibited showing a "Z" engine mounted on unitized skids.

Other applications of the Fairbanks-Morse "Z" engine to be displayed include numerous pumping outfits for pipe lines, gathering lines and miscellaneous oil-field duty. A deep well head, an injector pump, a rotary pump, a 2,500-gal. Typhoon pump and a 4-in. stroke power pump all manufactured by Fairbanks-Morse and powered by a "Z" engine of appropriate size will be exhibited in operation.

Farrar & Trefts, Inc.

Buffalo, N. Y.

In attendance

JOHN C. TREFTS, president
S. MENSONIDES, vice president

An innovation in oil-country boiler design is made in the Farrar & Trefts' 150-hp. boiler. This boiler is made with slanted firebox sides, the bottom of the firebox being 6 in. wider than the top, giving a 3-in. slant on each side. The outer wrapper sheet also has a 2-in. slant on each side, thus giving a water leg of increasing width—4 in. wide at the bottom and 5 in. at the top.

This new design provides accelerated water circulation in the hottest part of the boiler to give quicker steaming. Steam bubbles rise vertically through the water instead of along the firebox sides, eliminating all possibility of an insulating "steam jacket" being formed along the firebox walls. The wide bottom also enables the installation of larger burners to provide a maximum amount of heat for speedy steam generation.

The all-welded construction, previously introduced by Farrar & Trefts, is another modern feature. The boiler has no riveted joints, no plate overlaps or buttstraps of any kind. This feature reduces the weight as well as the upkeep expense, besides making it easier to wash and clean the boiler, as all surfaces on the inside are smooth and free from scale-catching obstructions.

"MANZEL" MODEL "94" FORCE FEED LUBRICATORS

7-Pint, Three-Feed Left-Hand Ratchet Drive Model "94" With Horizontal Outlets

"Manzel" Model "94" Lubricators meter out the oil to the engine with a clock-like precision and deliver it to the cylinders with unfailing regularity.

Single plunger pumping units draw the oil from the reservoir and force it, through the liquid filled sight feed glasses, directly to the points to be lubricated. The amount supplied by each feed is clearly shown in the sight glass after it has passed through the pumping mechanism and is actually on its way to the cylinder.

Each pumping unit is individually regulated and capable of very fine adjustment. Individual pumping units are easily removed for inspection or replacement without interfering with other units or stopping the lubricator.

All working parts are completely enclosed and operate in a bath of oil.

Lubrication with the "Manzel" Model "94" means most efficient lubrication of engine cylinders, reduction in oil consumption, greatly reduced wear on pistons and cylinders, elimination of carbon troubles due to excessive use of cylinder oil.

Made with one to twenty-four feeds — rotary or ratchet drive.

WRITE FOR CATALOG NO. 94-B GIVING FULL DETAILS AND BE SURE TO SPECIFY "MANZEL" MODEL "94" LUBRICATORS WHEN ORDERING YOUR NEW ENGINES.

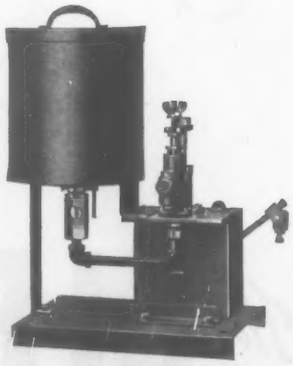
"MANZEL" SERIES "40T" CHEMICAL FEEDERS

These feeders are sturdy, accurate metering pumps for automatically injecting treating chemicals into oil lines. They deliver the chemical into the line in exact proportion to the amount of oil pumped.

The pumping unit is located on the outside of the feeder body where it is readily accessible and is the only part coming in contact with the chemical. All other parts are fully enclosed and run in oil.

Feeds can be adjusted to supply any amount of chemical required from a fraction of a drop per stroke to a maximum of several quarts per hour. The amount of chemical being supplied is shown in the sight feed. Manzel Feeders are equipped with an 8 qt. heavy sheet steel chemical tank with large filling cover.

The complete unit is mounted on steel base as illustrated.



CH-41T
Ratchet Drive

WRITE FOR CATALOG 68 DESCRIBING MANZEL CHEMICAL FEEDERS IN DETAIL.

MANZEL BROTHERS COMPANY
336-338 Babcock St. Buffalo, N. Y.

Gardner-Denver Co.

Quincy, Ill.

In attendance

H. G. MYERS, president
E. F. SCHAEFER, vice president
R. J. MacFARLAND, sales manager
G. J. MacFADDEN, chief engineer
H. K. PINKERTON, oil-field engineer
J. A. VAN DOORN, Tulsa manager
R. J. BAUER, special representative

Built for use in areas of exceptional drilling depths, the Gardner-Denver 16¼ by 8 by 20 duplex steam slush pump used in connection with the heavy-duty rig exhibited will be recognized as a slush pump of unusual size and strength. It has a divided fluid-cylinder construction with large, streamlined fluid passages to assure smooth flow of fluid. Other features include balance-piston type valves and roller-bearing steam-valve motion with large telescopic levers. The steam cylinders are of special close-grain alloy castings, the cylinders and cradle casting being an integral unit.

In addition, a Gardner-Denver 9½ by 8 vertical steam engine will be displayed with the heavy-duty rig mentioned above, and a 7¼ by 12 power slush pump driven by a Climax R-8-I engine. These latter two Gardner-Denver products are well known to drilling men everywhere.

New Bedford Cordage Co.

New Bedford, Mass.

In attendance

GEORGE N. HUNDINGER

For more than 100 years, New Bedford has been in the business of producing quality cordage. Samples of the highest grade select manila fibre chosen from the hemp markets of the world will be displayed by this concern. Spinning lines, catlines, drilling cable, and bull rope will be exhibited. New Bedford has been an exclusive oil-industry manufacturer for Continental since the organization in 1912.

Lunkenheimer Co.

Cincinnati, Ohio

In attendance

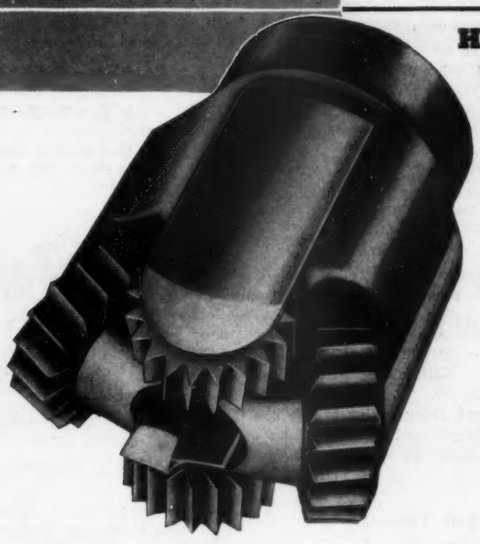
H. A. BURDORF, vice president in charge of sales
P. LUNKEN, sales representative
R. E. LUNKEN, sales representative
M. N. STICKEL, sales representative
J. A. BIRKHEAD, sales representative
H. R. DAVIS, sales representative
E. R. TIEBERMAN, sales representative
H. H. LAYRITZ, sales representative

A full line of valves, including bronze, iron, and steel types will be displayed. The Lunkenheimer line includes valves built for almost every conceivable purpose from those used on oil-field boilers to those used for refining installations. New alloys have been developed which provide longer wearing seats and will be shown to exposition visitors. On the heavy-duty Continental steam drilling rig, a three-chime whistle manufactured by Lunkenheimer will often be heard by those in attendance at the exposition. Its pleasing tone can be heard for a distance of 5 miles.

LEADERS IN THE FIELD

H. C. SMITH ROCK BIT
TYPE 5

H. C. SMITH CORE BIT



FEATURES OF THE H. C. SMITH ROCK BIT

1. Triple bearing construction of the gauge cutters eliminates side play of cutters and insures full gauge of hole.
2. Rugged body and superior design cross cutter bearing construction permits high rotational speed and heavy loads—when desirable.
3. Cutter assemblies designed to utilize the maximum cutting surfaces of all individual cutters.
4. More circulation provided through large slush tubes on side cutter and fan-tail circulation along cross cutters prevents "balling" of bit. Large openings around cutters permit quicker displacement of cuttings from bottom of hole.
5. 45° angle gauge cutter teeth insure straight hole cutting action of bit.
6. Spiral teeth on inside two-thirds of cross cutters give fast cutting action, while outside one-third of cross cutters have cross teeth to give maximum cross section of cutting surface preventing cutters from "rounding off."

FEATURES OF THE H. C. SMITH CORE BIT

1. Simple and positive locking of inner barrel while coring and retrieving of barrel after coring operation is completed.
2. Improved bearings in cutters which allows longer hours on bottom without loss of hole gauge.
3. Heavier pins and body construction for increased safety.
4. Improved double core catcher.
5. Floating inner barrel.
6. Hard and soft formation cutter heads are interchangeable on core drill.

Foreign Operators:

Dull cutters on H. C. Smith Rock Bits can be replaced with new cutter assemblies in your own shops at a substantial saving.

WRITE FOR DETAILED INFORMATION

• *Export Representative:* **VAL R. WITTICH** • 30 Rockefeller Plaza, NEW YORK, N. Y., U. S. A.

H C Smith Oil Tool Co.

GENERAL OFFICES AND PLANT - P.O. BOX 431, COMPTON, CALIF.

Mechanical Rubber Co.

Passaic, N. J.

In attendance

W. E. BELCHER, district sales manager
C. A. FRANKLIN, JR., salesman
L. M. DEUTSCH, salesman

A feature of this exhibit will be the new built-in coupling rotary hose. This is an outstanding development for improved rotary drilling practice as it makes the coupling an integral part of the hose. It is absolutely leak-proof under drilling pressure and is perfectly streamlined, eliminating flanges, nozzles, bolts, nuts, clamps, hydraulic nozzles. In addition the company will have steam manifold hose and slush-pump suction hose. The use of mechanical rubber hose for these purposes is entirely new, and actually installed on slush pumps the advantage of having this type of installation may be easily seen by the visitor. Another part of the exhibit will consist of a display board on which will be mounted all types of packing, belting, and sections of hose especially designed for oil-country use. At a glance the specialized products manufactured by the company for these specialized uses may be seen.

Youngstown Sheet & Tube Co.

Youngstown, Ohio

In attendance

M. S. CURTIS, sales promotion manager
C. H. LONGFIELD, general manager of sales
E. P. COREY, general manager tubular sales
G. W. CHRISTOPHER, assistant manager tubular sales
J. C. SIEGLE, field engineer tube division
DON LANGAN, representative
G. V. JAMES, exhibit attendant

The parent company of Continental Supply Co., Youngstown Sheet & Tube Co., will exhibit samples of casing, tubing, drill pipe, and line pipe in its booth in the Continental Building. A special feature of the tubular display will be Hydril drill pipe and Youngstown Speed-tite casing, both pioneered and developed by Youngstown engineers.

The newly developed Yoloy tubing which has high yield and tensile strength and also providing exceptional resistance to corrosion will also be displayed and discussed.

Westcott Valve Co.

East St. Louis, Ill.

In attendance

A. V. WADSWORTH, executive vice president
L. L. SCHARF, assistant treasurer
W. C. WADSWORTH, representative
H. H. TINCH, representative
W. B. CHAPMAN, representative
R. W. HENSON, representative
A. J. VOLLMER, factory representative

Christmas-tree hookups, drilling valves, gate valves, flow valves, check valves—in short, most any type of valve for use in the oil industry will be displayed by this company. Westcott is the only exclusive manufacturer devoting its time and attention to the manufacture of valves for oil and gas service. All its products are produced in keeping with the highest Westcott practices and both its steel and iron valves represent the perfection of the steel and iron-makers art as applied to its product.

C-O-Two Fire Equipment Co.

Newark, N. J.

38-39 Oklahoma Building

In attendance

J. P. MALONEY, general field sales manager
W. L. FERRIER, Chicago district manager
B. F. COVINGTON
B. S. ALLEN

Introducing new 50 and 75-lb. carbon dioxide portable wheeled fire-fighting units featuring rubber-tired wheels for easier and quicker movability and hinged metal covers for hose and horn protection against dust, dirt, weather, and for improved appearance.

Other items in the company's complete line of carbon dioxide type portable extinguishers, hose reel and rack units, manual and automatic systems will also be exhibited. This display will be in conjunction with that of Pyrene Manufacturing Co.

C. Lee Cook Manufacturing Co.

Louisville, Ky.

51-52 Texas Building

In attendance

W. WOOBANK
F. BLACK
ROBERT E. KIRN

Featuring a new development since the last oil show, a development that imparts to the company's graphitic-iron piston rings and metallic rod packings preconditioned wearing surfaces known as Tinizing. This exclusive surface treatment of the company's rings provides a coating of nonscuff, antifriction metal that it is said reduces initial friction, protects rods and cylinder from wear during the break-in operating period, promotes quicker "mating" between the ring and the cylinder or rod surface it contacts, provides a safeguard against initial scuffing and galling, and adds substantially to the life of these parts with proportionate reduction in maintenance cost.

Cooper-Bessemer Corp.

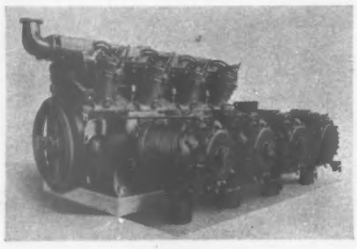
Mount Vernon, Ohio

Block G

In attendance

T. F. HUDGINS, director of sales
M. C. POLLOCK, vice president
S. E. JOHNSON, assistant sales manager
H. A. GEHRES, director of engineering research and development
R. L. BOYER, chief engineer

Exhibits five of its most popular and recently introduced engines and compressor units. In order of size, these machines will include the following: An 8-cylinder Type G-MV gas-engine-driven compressor unit, this being the company's V-angle compressor, rated 100 hp. per cylinder and having oil-cooled pistons, streamlined scavenging, controlled-fuel flow, precision-type bearings, and full-pressure lubrication among its many features. The recently announced Type JS vertical gas engine will be displayed. Particularly adapted to pipe-line pumping and power-generating purposes, this unit, too, offers oil-cooled pistons, many built-in auxiliaries, easy convertibility from gas to diesel fuel, and precision-type bearings throughout. The JS engine is conservatively rated for constant-speed stationary services at 56 to 87 hp. per cylinder as a gas engine, and 65 to 102 hp. per cylinder as a diesel. Also on exhibit will be the Type G-MS vertical compressor unit, rated 40 to 50 hp. at 400 to 500 r.p.m., with power and compressor cylinders arranged vertically, and designed to permit addition of a second compressor cylinder horizontally, for two-stage operation. Type G-SC, the company's 25 to 35-hp. vertical pumping engine, will be shown, as will the popular little Type GX3A starting-air compressor unit, which uses gas or gasoline as its fuel.



Type G-MV 8-cylinder compressor unit

The regular personnel from the company's Tulsa sales office will be in attendance.

Joseph A. Coy Co., Inc.

Tulsa, Okla.

6 Scientific and Technical Building

In attendance

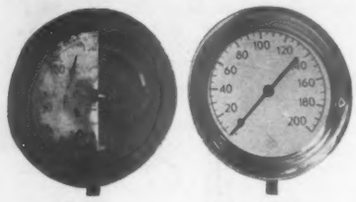
J. A. COY
J. A. KNEBEL
W. D. PERRY
A. L. DAY

Daniel Orifice Fitting Co., Los Angeles, Calif., representatives: PAUL P. DANIEL, J. G. HOLDENRIED, R. C. FLOURNOY, GLENN W. DANIEL.

Yarnall Waring Co., Philadelphia, Pa., representatives: ROGER A. MARTIN, C. A. COWLES, JR.

Featuring pressure-gage repairing service and showing distributed products: American Ashcroft gages; Consolidated oil relief valves and safety valves; Daniel orifice fittings, vapor-pressure bombs, butane bombs, and manometers; and Yarway impulse steam traps.

Will for the first time, to the company's knowledge, present the procedure followed in its shop in rebuilding all types and sizes of gages. Factory-trained men



Before *After*

completely check, recondition and reassemble pressure gages, showing various types and specifications of socket tube and tip assemblies and also movement and movement linkage used.

Crane Co.

196-197 and 254-255 Oklahoma Building

Chicago, Ill.

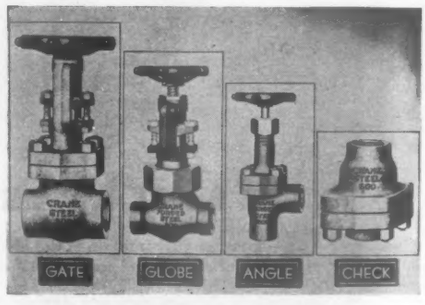
In attendance

P. R. MORK, vice president, sales division
W. H. PAPE, sales manager
J. E. STARK, administrative engineer
R. A. HENDRICKSON, manager, oil sales section
F. A. MALATESTA, manager, Tulsa branch
A. P. FRANCIS, Tulsa

Special oil-field representatives

R. E. KOHN, St. Louis
L. E. LaGARDE, New Orleans
A. H. HAHN, Terre Haute
E. V. PARKER, Houston
J. TANCRED, Dallas

The exhibit will feature a new line of small steel valves "tailor made" for the oil industry for services up to 2,000-lb. W. O. G. which the company is now bringing out for the first time.



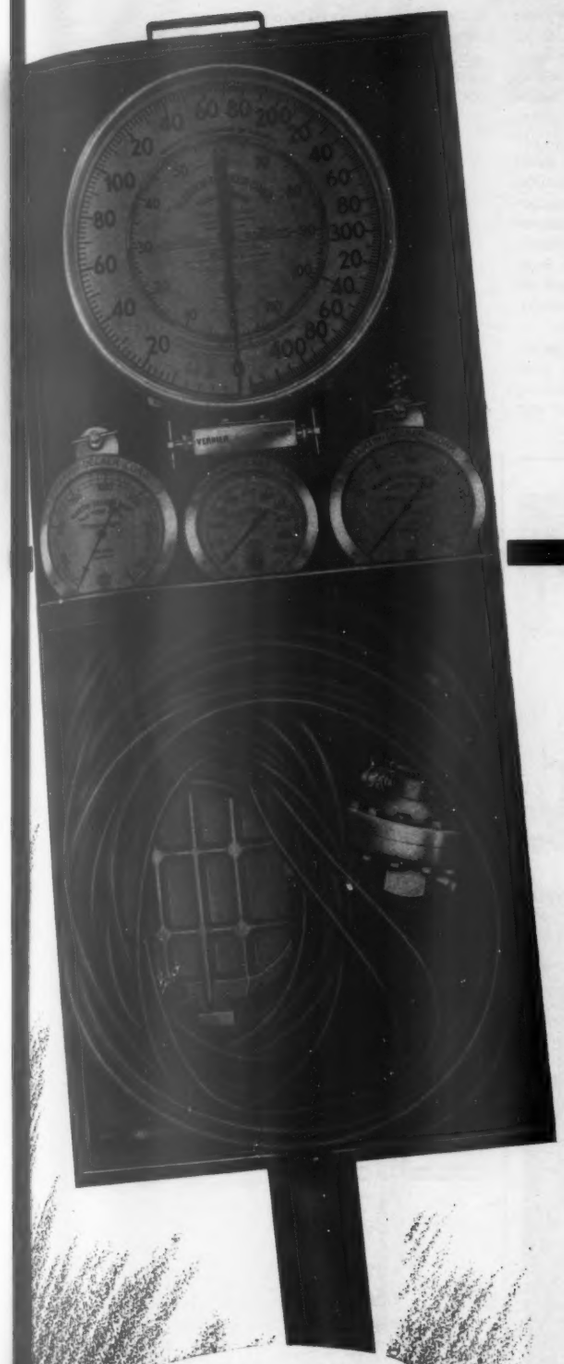
A new line of small steel valves for steam and oil services, exhibited by this company, includes gates, globes, angles, and checks, in sizes ¼-in. to 2-in., inclusive, and embodies both inside-screw and O. S. & Y. construction, union and bolted bonnets, screwed, socket-weld, and flanged ends. In all, there are 176 valves of the types mentioned.

To meet the various service requirements in this field, each type of valve was given individual attention.

Gate valves are made of cast steel with O. S. & Y. construction, having union-bonnet type and screwed ends in sizes ¼-in. to ¾-in., inclusive, and bolted bonnet with screwed, socket-weld, and flanged ends in sizes ½-in. to 2-in., inclusive, (1½1in. and ¾-in. are available in both union and bolted bonnet).

Globe and angle valves of inside-screw and O. S. & Y. construction. Inside-screw valves have screwed ends with union bonnet in sizes ¼-in. to ¾-in., inclusive, and bolted bonnet in sizes 1-in. to 2-in., inclusive. O. S. & Y. valves have screwed ends with union bonnet in sizes ½-in. to ¾-in., inclusive, and screwed, socket-weld, and flanged ends with bolted bonnet in sizes ½-in. to 2-in., inclusive, (½-in. and ¾-in. are available in both union and bolted bonnet).

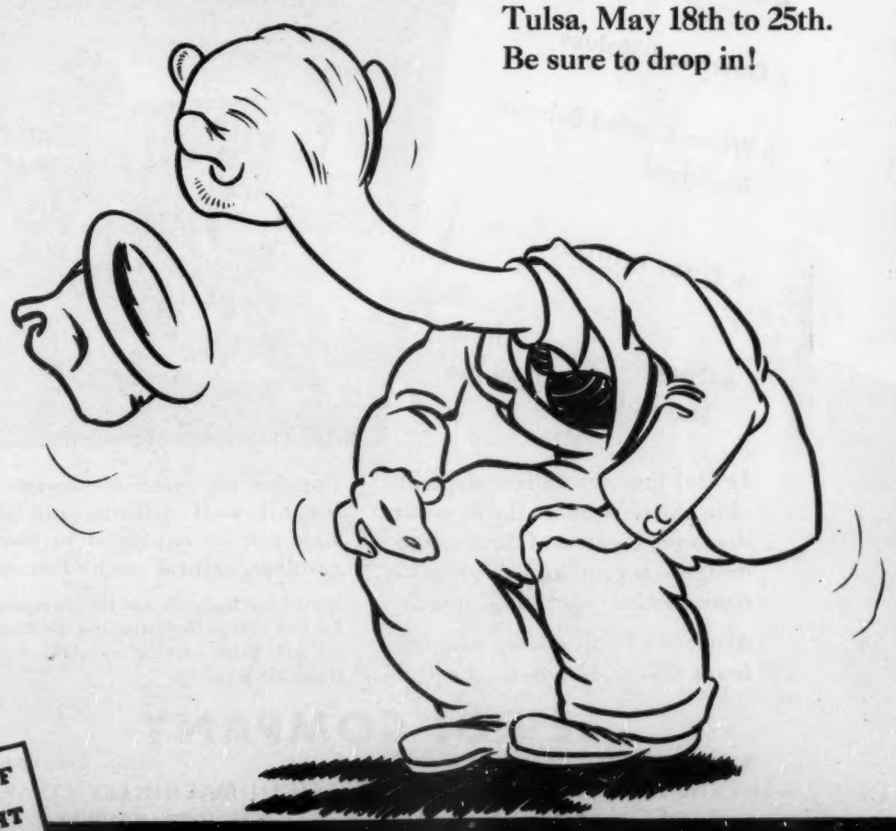
Check valves also are made in two types. The horizontal pattern is forged steel with union cap and screwed ends in sizes ¼-in. to ¾-in., inclusive, and with the bolted cap and screwed, socket-weld, and flanged ends in sizes ½-in. to 2-in., inclusive, (½-in. and ¾-in. are available in both union and bolted cap). The vertical ball pattern is cast steel with bolted joint and screwed ends in sizes ½-in. to 2-in., inclusive.



See the "SEALTITE" at the Oil Show

Pictures are mighty handy but, Mister, they just can't do justice to this baby. You've actually got to *see* the "Sealtite" to get the full importance of its new construction features!

And if you haven't had the chance to look the "Sealtite" over, drop in to Martin-Decker's booth at the Oil Show. You can take your time, look as long as you want, and we'll be glad to give you all the dope. Remember — Martin-Decker's exhibit in the Reed Roller Bit Building, Block 4, Drake Drive— Tulsa, May 18th to 25th. Be sure to drop in!



If you're interested in time-drilling-logging records, see the Rate of Penetration Recorder at the Martin-Decker exhibit also. Feel free to talk it over with us and get all the facts.

INTERNATIONAL PETROLEUM EXPOSITION TULSA MAY 18-25

HOME OF THE WEIGHT INDICATOR

MARTIN DECKER CORP.

LONG BEACH, CALIFORNIA

SAN JOAQUIN VALLEY: A. F. McQUISTON, BAKERSFIELD, CALIFORNIA
MID-CONTINENT DISTRIBUTOR: REED ROLLER BIT COMPANY, HOUSTON, TEXAS

Crane Packing Company
Houston, Tex.
108 Texas Building
In attendance
F. E. PAYNE, president, Chicago
R. E. ALLEN, sales manager, Chicago
R. W. OVERTON, sales engineer, Tulsa
E. B. HEATHCOTT, sales engineer, Houston
FRED BLACKBIRD, sales engineer, Dallas
ROY BLACKBIRD, sales engineer, Houston

Exhibiting all packing materials required for drilling, production, gasoline plants, pipe lines, and refinery services. Display incorporates the latest developments in mechanical packings.

Cummins Engine Co.
Columbus, Ind.
Mid-Continent Building, corner Drake Drive and Texas Drive

This year the company will put on display for the first time its latest supercharged unit designed from the widely used Model LI-600. This engine's 250 hp. at 1,000 r.p.m. has been boosted to 325 hp. with a few mechanical changes and the supercharger. Overall dimensions are practically the same and weight has not been appreciably increased.

In addition to this new model, the company will also show three other supercharged diesels—the Model HPS-601 power unit with outboard bearing, six-cylinder, 4⅞-in. bore, 6-in. stroke, 672-in. cubic displacement producing 175 hp. at 1,800 r.p.m.; two marine engines equipped with reverse and reduction gears—the first, a Model AMRS-600, six-cylinder, 4-in. bore. 5-in. stroke, producing 135 hp. at 2,200 r.p.m., and the second, a Model HMRS-600, 4⅞-in. bore, 6-in. stroke, 672-in. cubic displacement, 200 hp. at 1,800 r.p.m.

Two more diesels will be seen. The small truck engine, Model AA-600, which produces 100 hp. at 2,200 r.p.m., will be shown as well as a full-size cut-away model of the popular 150 hp., six-cylinder, Model HB-600.

The booth will have as a background, an illuminated display unit, 20 ft. long and 10 ft. high, which shows the operation of the company's exclusive fuel system, various fuel system and engine parts, and a variety of transparent back-lighted photographs of diesel applications.

200-hp. supercharged Cummins diesel

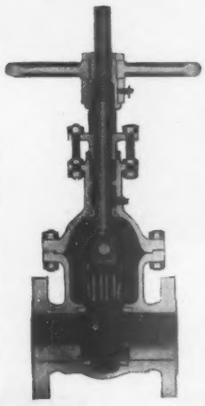
The new supercharged models, like all Cummins diesels, operate on the four-cycle principle, have the same bore and stroke as the standard models and develop their maximum horsepower at standard engine speeds. There is no appreciable increase in weight or dimensions over standard models.

Curd Lumber Co.
Tulsa, Okla.
West of Grounds Office

Dallas Tank & Welding Co.
Dallas, Tex.
Block R

Darling Valve & Manufacturing Co.
Williamsport, Pa.
113 and 114 Oklahoma Building
In attendance
M. L. HOUGH, president
S. C. MAY, general sales manager
J. S. KIESEL, chief engineer
FRANK CAVENAGH H. B. DENNIS
EARL J. CONNELLY T. M. JONES

Showing a full line of cast-steel taper-seat gate valves of an improved design for high temperatures and refinery service. Cast steel, Darval semisteel, as well as forged-steel double-disk gate valves and check valves and crosscountry pipe lines and gathering lines.



Hydraulically operated and electrically operated gate valves are also displayed.

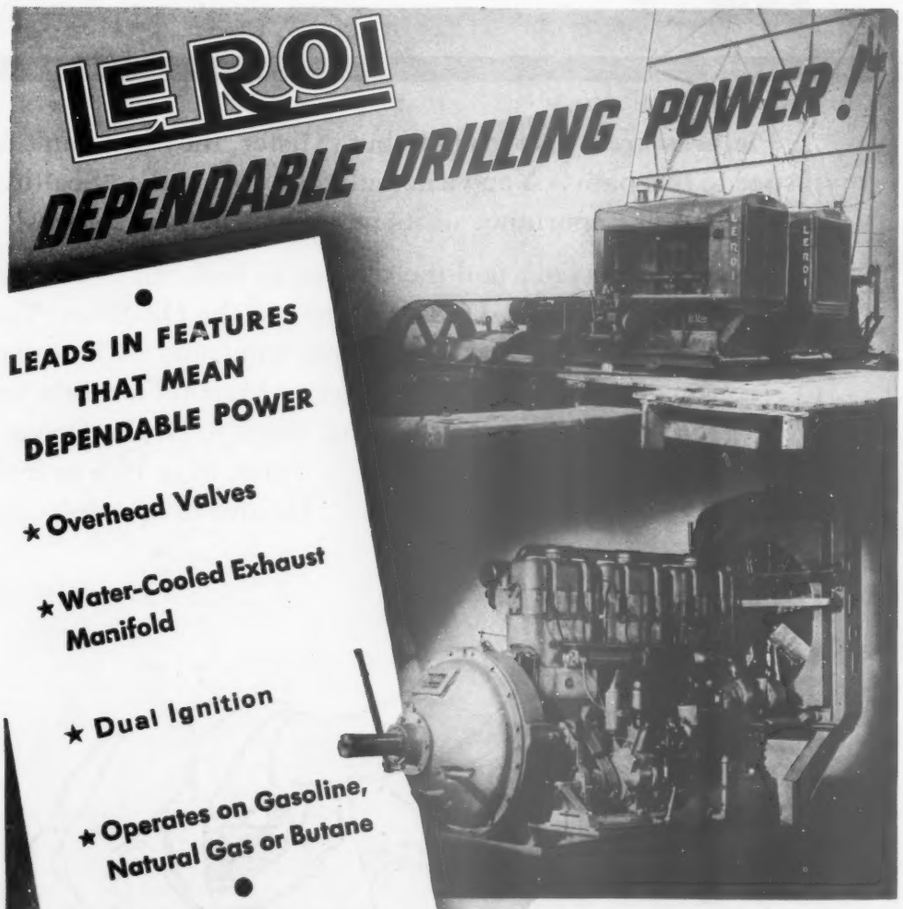
A high-pressure Darling fire hydrant for refinery and industrial use is included in this display.

Several of the valves are cut away to show the internal construction and action of the parts in operation.

There is also an interesting display of Darcova, Darval and Darflex valve cups and Darling balls and seats.

Dayton Rubber Manufacturing Co.
Dayton, Ohio
Continental Building
In attendance
T. C. DAVIS, sales manager, industrial division
E. P. SPORE, district representative
R. H. HOHMAN, representative
J. D. HERSHEY, assistant advertising director

Exhibit consists of animated and illuminated background, high-lighting construction features of the company's cog-belts with translite illustrations of typical


LE ROI
DEPENDABLE DRILLING POWER!
LEADS IN FEATURES THAT MEAN DEPENDABLE POWER
★ Overhead Valves
★ Water-Cooled Exhaust Manifold
★ Dual Ignition
★ Operates on Gasoline, Natural Gas or Butane

Le Roi Engines deliver dependable power equal to the heaviest demands because of their sound design—rugged construction—conservative operating speeds.

Available in five sizes ranging from 65 to 418 h. p., Le Roi Engines are specially designed for oil well drilling, and all sizes can be equipped to burn gasoline, natural gas or Butane.

Write for bulletin on the complete Le Roi line—for pumping, drilling, all oil field service needs—sizes from 2½ h. p. up.

LE ROI COMPANY

MILWAUKEE, WISCONSIN • TULSA, OKLAHOMA

GENERAL MACHINE & SUPPLY COMPANY
WICHITA FALLS, • ODESSA, TEXAS

WESTERN MACHINERY COMPANY
ST. LOUIS, MISSOURI
SALEM, ILLINOIS • EVANSVILLE, IND.

SOUTHERN ENGINE & PUMP COMPANY
HOUSTON • DALLAS • KILGORE • BROWNWOOD
CORPUS CHRISTI, TEXAS

"You'll have it Right Away"

Nowhere is this answer so repeatedly expected in response to a demand for supplies and service as in the oil country. Nowhere is the need for speed in obtaining new or replacement equipment more acute. Those who serve here must match the breakneck pace of operations in these industries.

Republic's Distributors have gained an enviable reputation for consistently beating the clock on the mechanical rubber goods requirements of the oil fields. They stand prepared with experienced personnel and ample stocks of nationally famous belting and hose to help avoid expensive delay. There's always the assurance of prompt and efficient service when you call on your nearest Republic Distributor for Super Excelo Transmission Belting or other quality rubber products. REPUBLIC RUBBER DIVISION OF LEE RUBBER AND TIRE CORPORATION, YOUNGSTOWN, OHIO.

HOSE • BELTING • PACKING
MOLDED PRODUCTS

REPUBLIC RUBBER

DISTRIBUTORS

Frick-Reid Supply Corp. Tulsa, Okla.
The Bovaird Supply Co. Tulsa, Okla.
W. C. Hendrie & Co., Inc. Los Angeles, Calif.
Pacific Coast Rubber Co. San Francisco, Calif.

applications in the oil-field industry. There is also a multiple-drive unit in operation which shows the application principle of cog-belt and V-flat drives. Continental Supply Co. is distributor.

Dearborn Chemical Co.
Chicago, Ill.

106-107 Texas Building

In attendance

EARL M. CONVERSE, vice president, Chicago
CLARENCE C. RAUSCH, assistant to sales manager, Chicago
TED F. KITTREDGE, Little Rock, Ark.
B. E. CONLEY, Fort Worth, Tex.
IRL L. YETMAN, Tulsa
CARL B. SMITH, Chicago
J. R. RILEY, JR., Tulsa
J. M. HALTOM, Oklahoma City, Okla.
R. F. CARR, JR., Chicago

Exhibit will be devoted to Dearborn water treatment and analytical engineering service as well as to No-Ox-Id rust preventive pipe coatings and No-Ox-Idized pipe-line wrappers.

The main exhibit will consist of a 20-ft. display booth made up of three panels. The center panel will show a large "transparent mirror" equipped with flashing illumination. When the panel is unlighted, all that can be seen is a reflecting mirror. When the lamps behind the mirror are flashed on, the mirror becomes transparent and reveals a large photograph of a No-Ox-Id pipe-line installation.

One of the side panels will be devoted exclusively to Dearborn feed-water treatment and equipment. A number of actual chemical pumps and proportioning equipment used to feed chemicals into the boiler water will be on display. In addition, there will be a large

display of equipment used in analyzing water supplies in the laboratory and in the field. Photographs will show step by step the procedure in making a water analysis and recommending the proper treatment and control methods.

The second side panel will be devoted to No-Ox-Id rust preventive and No-Ox-Idized wrappers for pipe lines. Photographs will show the methods of applying No-Ox-Id and No-Ox-Idized wrappers by machines as well as by hand. There will be actual samples of different sizes of pipe on display. These pipes will be coated with machine-applied and hand-applied wrappers and coatings. A number of metal plates will also be displayed on which various consistencies of No-Ox-Id have been applied.

An improved asbestos wrapper for protecting underground pipe lines against physical and chemical action has just been developed by the company.

This new product — No-Ox-Idized reinforced asbestos wrapper — has greater tensile strength, dielectric strength, and moisture-resisting properties than other No-Ox-Idized asbestos wrappers, but is pliable enough to cover pipe joints and other irregular surfaces without cracking. The new wrapper is resistant to soil action and impervious to fungus growth.

Deep Rock Oil Corp.
Tulsa, Okla.

28-29 Kansas Building

In attendance

B. L. MAJEWSKI — W. J. CARTHAUS
W. M. MURRAY — B. W. FRICHOT
GEO. WALTERSHAUSEN — W. E. MOODY

Dehydro Co.
Tulsa, Okla.

Block 4

In attendance

RUSSELL ANDUSS — CLAUDE BEST
HOWARD ANDREWS — BILL BEST
ARLIN BEAVERS — MARK BOLLES
RALPH BUSSETT — FIELD DAVIS
HARRY HORTON — LESTER HUNTER
SLIM LEWIS — IRA LIND
MURL OGDEN — BILL PRESTON
BILL ROACH — DALE SHAPPELL

The company was founded in 1927. After 3 years of extensive laboratory work and plant trials it offered to the oil industry its quality product for reducing nonmerchantable crude to one which readily passes the most stringent pipe-line specifications. Another policy, the company states, is to keep available for the producer a service which is most dependably preformed by exceptionally able men with a competent background and a wide range of experience.

The exhibit will feature new Dehydro and Parasol formulae; a show case exhibiting the complete laboratory equipment carried by each field engineer; and gravity charts will be available.

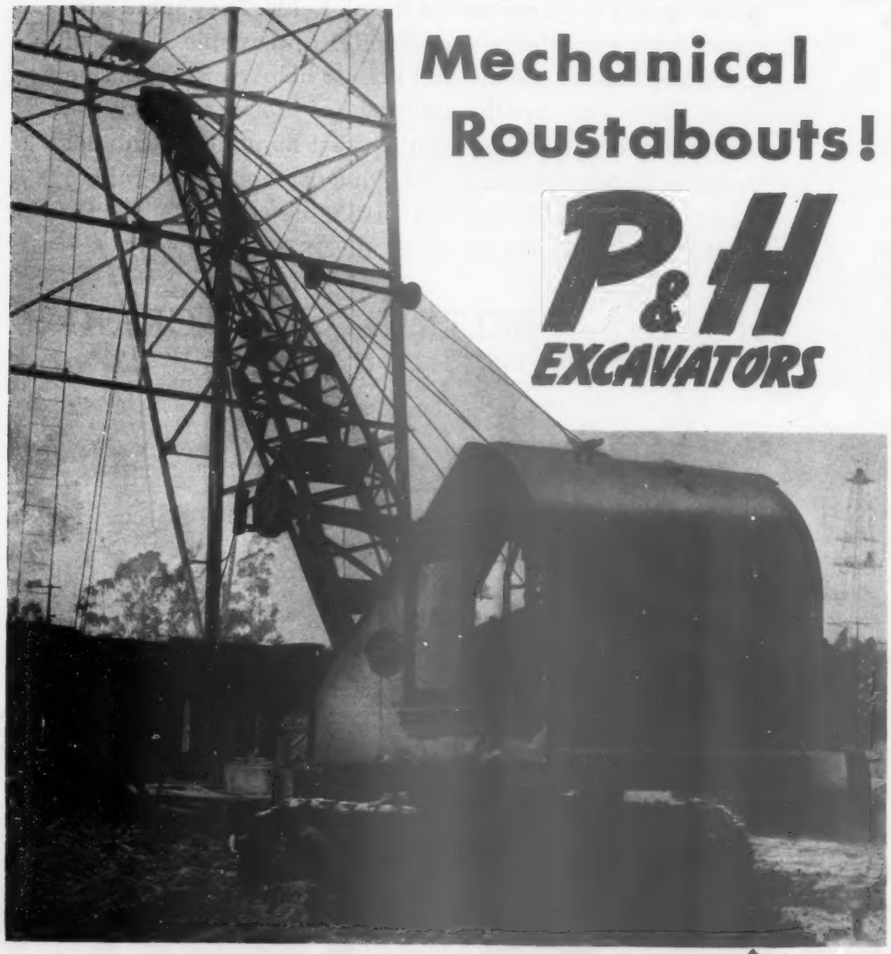
Diamond Chain & Manufacturing Co.
Indianapolis, Ind.

11-12 Scientific and Technical Building

In attendance

J. L. WAMSLEY — W. A. WARRICK

General description of the equipment shown: *24-strand ¾-in. pitch finished steel roller chain*



They'll take anything a drill pusher can pitch!

THERE'S no place for sissies around the oil country — nor for machines that can't take abuse.

When it comes to digging slush pits and basements, these P&H's "dish it out" in a way that wins respect of the toughest crews wherever they go. And they do it at rock bottom costs!

You can easily check this for yourself — the oil fields are full of 'em. That, in itself, says plenty. But if you want *all* the facts, write us for literature.

General Offices: 4527 West National Avenue, Milwaukee, Wisconsin

3/4 YARD
1/2 YARD
3/8 YARD

HARNISCHFEGER
CORPORATION
EXCAVATORS • ELECTRIC CRANES • ARC WELDERS P&H HOISTS • WELDING ELECTRODES • MOTORS

drive.—This drive will consist of a 30-tooth driver sprocket, a 90-tooth follower sprocket and will use 8 ft. of ¾-in. pitch by 24 strands wide press-fit center-plate chain on 24.433-in. centers. The drive will be pump-lubricated with individual streams of oil flowing on all center plates. The drive was designed and built to illustrate the trend of finished steel roller chain applications in the fields where high speeds, short center distances and large horsepower capacities are required. This drive has maximum speed of 1,750 r.p.m. on the 30-tooth sprocket and is capable of transmitting the following rated loads:

310 hp. at 500 r.p.m.
470 hp. at 1,000 r.p.m.
540 hp. at 1,500 r.p.m.
550 hp. at 1,750 r.p.m.

Center distances are limited only by the space required for the two sprocket outside diameters to clear each other.

Chain-driven clock.—This unusual clock is completely driven by Diamond roller chains and has been checked for accuracy of timing and found to be correct. The clock is driven with standard ⅜-in. and ½-in. pitch chains and is enclosed in a transparent plastic housing and mounted on a chromium-plated steel base. A 1/150-hp. synchronous motor drives the movements through a unique and compact chain reduction. The reduction from motor shaft to hour-hand shaft is 129,600 to 1. Only seven chains are required for the reduction. No sprocket is larger than 3½-in. o.d. nor smaller than 1⅝-in. o.d. This chain-driven clock has been designed and built to show the accuracy of timing and the adaptability of chain drives.

Twenty-six enlarged photographs of actual applications of Diamond chains as standard equipment on oil-country machinery manufacturer's products will be exhibited. Various sizes of regularly used oil-country chains, including eight-strand 2½-in. pitch chain will be on display.

Eugene Dietzgen Co.

Chicago, Ill.

7 Scientific and Technical Building

In attendance

H. S. SANDLER E. E. CLARKSON

Exhibit will show latest type of surveying instruments and equipment as used in the oil industry. Oil gagers tapes and sounding attachments will also be shown. In addition a representative line of drafting machines and drafting materials will be exhibited. The latest and most complete examples of reproduction papers and cloths used in the making of oil-field maps will be demonstrated.

The company is one of the oldest and largest manufacturers and distributors of instruments and materials used in surveying, drafting and reproduction work. It is well represented in the oil territory so as to completely serve the petroleum industry.

Dodge Manufacturing Corp.

Mishawaka, Ind.

4-5 California Building

In attendance

B. L. MYERS L. O. CARROLL
A. T. BODLE EARL GEE

Featuring the company's "Thirty Thousand Hour Line" of antifriction bearings for oil-field service as well as other important items of power-transmission equipment having wide application in this field. The antifriction-bearing display will feature for the first time a new and important engineering development in the form of a simplified selection chart which will enable anyone to quickly select the right bearing for any job. This display will also include the new Dodge-Timken double-interlock pillow block which has just been announced.

An operating display of bearings, friction clutches, V-belt drives, and variable-speed transmissions will also be shown.

J. P. Devine Manufacturing Co., Inc.

Mount Vernon, Ill.

120 Kansas Building

In attendance

C. W. REYNOLDS, president
P. T. BROCKLEBANK, vice president
J. E. FOGARTY, sales manager
V. O. MARSHALL, engineer

Will not have any equipment on display, but representatives will be on hand to meet visitors and to distribute literature.

Dowell Incorporated

Tulsa, Okla.

Block Y

In attendance

Executive Office

A. P. BEUTEL, president and treasurer
N. R. CRAWFORD, vice president and general manager

Mount Pleasant, Mich., District

W. S. DAY, district manager
L. C. JONES, station manager, Allegan

Wichita, Kans., District

J. A. CUMMIN, district manager, Wichita
J. SUTHERLIN, station manager, Great Bend
D. M. POMRANKY, station manager, Eureka
R. E. DUBLIN, station manager, Hays
J. M. VEAZEY, station manager, Newton
D. M. THOMSON, sales engineer, Great Bend
D. M. ROBERSON, treating engineer, Hutchinson
J. SAMPSON, treating engineer, Great Bend

Seminole, Okla., District

W. D. MILLER, distrist manager, Seminole
A. A. TOWNSEND, sales engineer, Seminole
E. S. VILLINES, station manager, Tulsa
L. C. CLARKE, treating engineer, Seminole
C. L. MITCHELL, treating engineer, Seminole
R. F. COPUS, treating engineer, Seminole

Midland, Tex., District

W. J. RUSSELL, district manager, Midland
B. J. COTEY, station manager, Seagraves
T. E. TIMMONS, station manager, Hobbs, N. M.
J. H. FINNEY, station manager, McCamey

Borger, Tex., District

R. L. WHITE, district manager, Borger

Salem, Ill., District

J. H. COURTNER, district manager, Salem
B. E. LANGLEY, sales engineer, Salem
J. C. McCORMICK, station manager, Flora
W. F. BROWN, station manager, Salem
V. E. LANG, treating engineer, Flora

Shreveport, La., District

C. E. MANGOLD, district manager, Shreveport
L. D. BRUNSON, sales engineer, Shreveport

Graham, Tex., District

F. R. HOLLAND, district manager, Graham
N. D. Webb, station manager, Graham

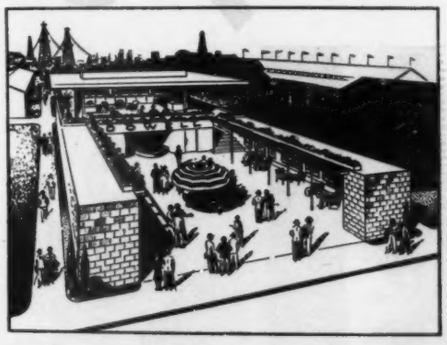
Owensboro, Ky., District

L. A. COURTER, district manager, Owensboro

General Office

J. G. STAUDT, assistant manager, Tulsa
W. E. REARDON, assistant manager, Tulsa
R. D. SHAW, sales manager, Tulsa
F. I. McCONNELL, assistant sales manager, Fort Worth
H. W. ROSS, assistant sales manager, Tulsa
M. L. STIRLING, sales engineer, Tulsa
K. L. FLANDERS, sales engineer, Shreveport
G. F. WILLIAMS, sales engineer, Tulsa
J. H. ADKISON, sales engineer, Tulsa
R. D. LOESBY, sales engineer, Tulsa
M. E. BRINES, sales engineer, Tulsa
D. G. HEFLEY, assistant research director, Tulsa
J. B. STONE, chief chemist, Tulsa
P. E. FITZGERALD, geologist

Dowell Incorporated opens its two-story, modernistic building for the first time at the Tulsa 1940 International Petroleum Exposition. Located across from the



Cafe de Petrol, this distinctive structure was designed by Alden B. Dow. Built of concrete and steel, it is permanently constructed. The spacious courtyard and balcony framed in a vast variety of plants and flowers, is particularly designed to exhibit the highly specialized chemical services that Dowell performs.

A visitor at the exposition will see in this building a feature almost unknown in Tulsa—a cantilever roof. This symmetrical building thoroughly exemplifies the scientific trend of the entire oil industry. At the same time it is an artistic creation of exceptionally fine taste. The building is designed for the maximum comfort of visitors. A guest at the show can sit at ease in the courtyard and inspect all the latest developments in chemical service for oil and gas wells. As he rests he can see the industrial acidizing display, exhibited for the first time; the abrasive perforating gun; the acid jet gun; and new cementing service equipment.

Everyone is cordially invited to see these and many other interesting exhibits of outstanding contribution to the progress of the oil industry.

Duff-Norton Manufacturing Co.

Pittsburgh, Pa.

62-63 Oklahoma Building

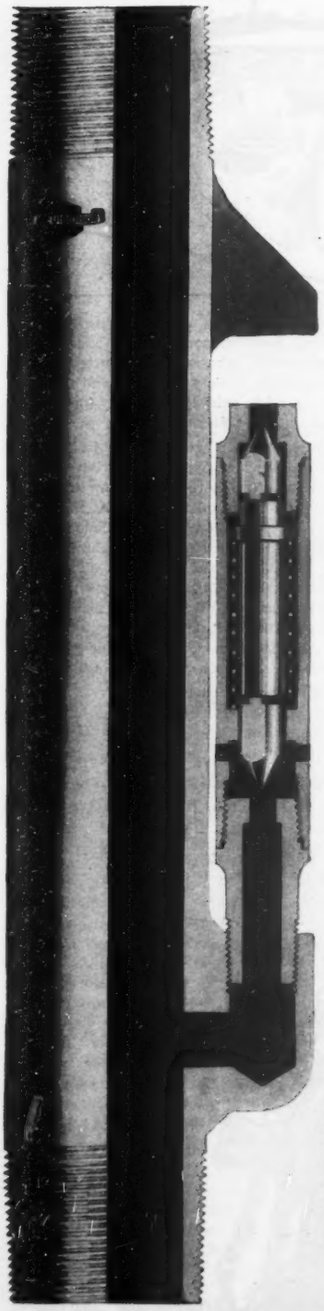
In attendance

C. N. THULIN H. C. GARDNER

Displaying a line of oil-field jacks, including automatic lowering jacks, ball-bearing screw jacks, bell-bottom screw jacks, ratchet jacks, self-lowering jacks, etc. Featured exhibit will be the new and improved four-way general purpose jack, a standard piece of oil-field equipment for many years, recently improved for better performance. The general purpose jack is a chain-type unit which combines straight lifting with chain, hook and foot lifting, plus the usual head lifting. It is built for heavy duty, but is extremely lightweight for its capacity. A hinge or pivoted base permits the jack to be operated from an angle for shoving, pushing, and like operations. There are four new improvements on the unit. The base casting has been made stronger by additional ribbing. The position of the fulcrum has

SEE THESE *New Tools*

At the GUIBERSON Exhibit
Space Numbers 217, 218, 233, 234



GUIBERSON . . . pioneer of efficient, economical and safe oil field tools . . . *again strides forward!* Developing for you in Gas Lift Equipment the New Flow Valve and New Surface-Controlled Intermitter . . . and for modern drilling methods, the New Drilling Head and Rotating Blow-Out Preventer. These New Tools are designed for the logical method of producing and drilling and are demonstrated . . . IN ACTION . . . for your inspection.

See the action at the bottom of your well. Observe the oil column build-up. . . . Watch the Flow Valve snap into action, shooting a slug of oil to the surface with bullet speed. Time the action for clock-like regularity of production, and you will have a new appreciation of the value of Flow Valves in a scientific installation in wells of medium to high productivity.

Look at the facsimile of an extremely low productivity well. . . . Focus your attention principally on the Surface-Controlled Intermitter. Perceive the action of the trip wire delivering fluid to the surface at measured time-set intervals, and you will actually see how you can increase production in a low fluid level well. Remember, *you control the slug size . . . from the surface* . . . with the ease of setting your watch, and like your watch the action is automatic.

You won't want to miss the New Drilling Head and Rotating Blow-Out Preventer in operation. It's the most modern tool today for keeping drilling under control, especially where high pressures are encountered. You will want to know more about this Drilling Head's use in Reverse Circulation and Tubing Wells Under Pressure, and how it combines three tools in one. The pack-off principle employed is simple, always safe and practical.

FLOW VALVES FOR GAS LIFT
(Patents Pending)

The Type C Flow Valve represents the peak of perfection in simplified, accurate Flow Valve installations. It is simple in construction, only one moving part . . . Operation is solely by differential pressures . . . Snap Action, in both opening and closing . . . Positive Shut-Off, instant action of valve stem makes gas leakage impossible . . . Gas Flow NOT through working parts, this avoids wear and erosion of valve and keeps the valve gas-tight . . . Full Opening through tubing, permits easy access through mandrel, for swabs and bottom-hole pressure recorders . . . Wide Range of operating pressures to meet most well conditions . . . Flow Control, can be determined by casing pressure applied.

See This Tool in ACTION

BE SAFE THAN SORRY — BETTER — GUIBERSON

THE GUIBERSON CORPORATION
Houston, Texas Dallas, Texas Tulsa, Okla.
Representatives In Every Important Oil Field

THE GUIBERSON

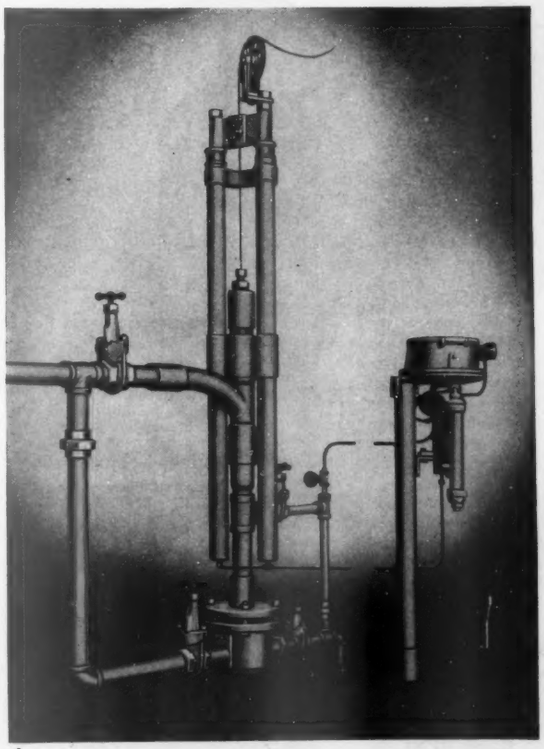
IN ACTION

Located in the OKLAHOMA Building . . . . . East End

The safety features and absolute control by the driller will be outstanding in your mind when you see the Drilling Head's pack-off medium . . . grip and rotate with the square kelly . . . effecting a positive seal.

The Guiberson Corporation is proud to present these new tools. Proud . . . because we have again designed to aid you in drilling and producing economically and efficiently.

Come in . . . *you are due for a surprise . . . your time will be well spent.*



SURFACE-CONTROLLED INTERMITTER
(Patents Pending)

The Gas Lift Division of Guiberson scores again with the Surface-Controlled Intermitter. Designed to place full control of extremely low fluid level wells on the surface. The cycle of operation is based on definite mechanical-time-controlled methods, completely lifting all fluid to the surface with clock-like precision. All regulation . . . operating mechanisms . . . and controls are on the surface. This Surface-Controlled Intermitter is simple in construction . . . no cumbersome parts to get out of order . . . and produces fluid at exceptionally low cost.

See This Tool in ACTION

ADVANTAGES OF GUIBERSON DRILLING HEADS
(Patents Pending)

The Rotating Blow-Out Preventer, Drilling Head and Stripper provides a positive pack-off between the kelly, drill pipe or tubing and the casing. Effective results are obtained when drilling-in-under-controlled pressure, or for preventing blow-outs in drilling where high pressures are encountered. The pack-off principle is excellent for tubing wells under pressure. Conditions requiring a back pressure on the drilling fluid will find this tool equal to the job. Definite safety to men and well is assured. Available in three sizes.

Be Sure to See This Tool

CORPORATION

been altered to bring about greater ease of operation. The pitch of the rack teeth has been changed to permit easier jacking. .Safer, smoother operation has resulted from the new automatic lowering mechanism and the use of triple-toothed steel pawls.

A feature of the general purpose jack is that all working parts are fully enclosed and protected from the sand and silt of oil-field work. The inside mechanism is of the utmost simplicity, with no machine screws or parts to come loose and get out of adjustment. The spring mechanism is contained in a housing which can be removed bodily for inspection or replacement. There are no loose pieces, bolts or nuts to adjust within the jack. A steel chain fits into slots on top of the jack, and is used as a sling to engage various objects. A double-socket lever aids effective operation in close and cramped quarters.

This jack can be spotted easily by one man for such oil-field operations as raising casing sills, jacking stationary steam engines, skidding rigs, setting machines and similar work. It is built in 5 and 15-ton capacities.

Dresser Manufacturing Co.
Bradford, Pa.

261-262 Oklahoma Building

In attendance

M. N. DAVIS, executive vice president
H. P. BONCHER, sales manager
C. T. DAVIS, district manager
H. R. SHIDEL, district manager, oil-field division

Exhibiting Dresser couplings and pipe-line repair devices for the construction and maintenance of field and transmission lines, with specific information presented on salt-water disposal lines, cathodic protection, well insulation and piping, and new-type casing bushing. An interesting feature of the exhibit will be an actual demonstration of a flexible pipe joint. A pipe line will be maintained at a pressure of 100 lb. per sq. in. and a joint on this line will be moved up and down through a 4° arc by an eccentric. A counter will keep track of the number of deflections, which on previous shows have run as high as 625,621 times before the show closed.

Dresser casing bushing, Style 83

Style 83 casing bushing

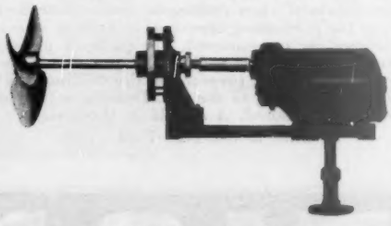
Eastern Engineering Company
New Haven, Conn.

37 Kansas Building

In attendance

WALTER S. SMITH
HENRY G. CHENOWETH

Exhibiting its complete line of light and heavy-duty propeller-type mixing and blending equipment. The exhibit will also include industrial transfer pumps, the entire new series of midget centrifugal pumps, laboratory equipment, and temperature-controlling apparatus.



Eastern side-entering mixer

Models of portable, side-entering, and fixed vertical mixers, built to scale, will operate in lighter glass tanks to demonstrate mixing and blending actions. Full-size mixers will be shown in conjunction with each model. The company's mixers are offered in size fractional to 25 hp.

An interesting water display will be operated by several models of midget centrifugal pumps. There will be released and exhibited for the first time two entirely new midget pumps. The pumps, which weigh only a few pounds, offer really remarkable performance in comparison with size, both as to capacity and durability.

Several medium-sized portable and stationary industrial transfer pumps will be presented. A sump pump will operate a water display.

The exhibit will include several variable-speed laboratory stirrers and laboratory and industrial temperature controls.

Eagle-Picher Sales Company
Cincinnati, Ohio

44-45 Texas Building

In attendance

T. C. CARTER, general manager, Eagle-Picher insulation division, Cincinnati
DOUGLAS VIA, manager, industrial insulation sales, Cincinnati
C. B. LYNDE, insulation sales-contract manager, Joplin
H. M. ABER, sales representative, Dallas

The Eagle-Picher industrial insulation display unit is unusually attractive. A large, modernized version of the famous Eagle-Picher trade mark commands attention in the center of the display's background. Directly below this familiar "E-P" insignia is the simple, impressive statement, "Since 1843."

Eagle Super "66"

This central theme is balanced on either side by a horizontal row of circular photograph blow-ups. The photos are quite large and are illuminated from behind by hidden lighting. Each depicts a typical application for one of the more widely used Eagle industrial insulating materials such as Super "66" plastic insulation, blanket insulation, Supertemp block, and Insulseal waterproofing cement. A brief, easy-to-read caption under each picture describes the application shown.

Much of the effectiveness of the display results from the simplicity of the design. The illuminated photos are located at eye-level where they arrest attention. They tell the story almost at a glance. An especially attractive color scheme and unique demonstration units, strengthens the effect.

Eas'man Oil Well Survey Co.
Los Angeles, Calif., and Dallas, Tex.

44 and 59 Scientific and Technical Building

In attendance

H. JOHN EASTMAN — RAY F. BOLTON
AL G. PABST — C. P. COLLINS
H. G. LIVINGSTON — M. E. SHRADER
L. C. MILLER — W. J. OPOCENSKY
NORMAN OSWALD

Products on display include removable open-hole whipstock, knuckle-joint deflecting tool, permanent casing whipstock, spudding bits, Stokenbury and bottom-hole methods of orienting, regular single-shot directional surveying instrument, small inside single-shot directional surveying instrument, multiple-shot directional surveying instrument, Type "M" drift indicator, rock and drag directional drilling and reaming bits, rock-type underreamer, and casing rollers. The Type "M" drift indicator and bottom-hole orientator have not been previously shown.

To eliminate the developing of photographic drift-indicator records in solutions, the company is manufacturing a new Type M drift indicator radically different in design. It records on light-sensitive paper that can be loaded and unloaded in daylight. It is small and compact. The mechanism incorporates an arrangement whereby the inclination of the well is recorded by a strong light beam directed through a plumb bob onto the light-sensitive paper printed with concentric circles, each of which represents a degree.

One of the most recent developments in oil-tool orientation is by recording the relation between a magnetic field, placed in a known relation to the tool face, and the direction of the angle of inclination of the hole. Permanent magnets are placed in a regular substitute directly above the tool being oriented and the angle between the magnets and the direction of the tool face is measured. The tool is stopped at the depth of the last single-shot recording. A special instrument is run inside the drill pipe and stopped so that a magnetized disk is between the permanent magnets in the sub. This disk is pulled into the azimuth of the magnets and a record made of the relation of the low side of the hole and the magnets. The necessary orientation correction is ascertained by the use of a special reader.

Econo-Vent Corp.
Chicago, Ill.

89 Kansas Building

In attendance

E. S. GAYLORD, president
S. X. WILLARD, sales manager
E. M. NEWCOMB division manager
F. P. BUCKLE, division manager

Of particular interest to the oil industry, the company believes, is a new patented liquid-seal vent unit, which has met with unusual success in the conservation of evaporation losses in the storage of gasolines, naphthas, crude oil, and other volatile liquids. This equipment, with a complete full-sized, visible model, showing its actual operations under vacuum and pressure conditions, is on display. It is particularly adaptable at bulk storage plants, and manufacturers claim exclusive advantages and definite savings from losses due to evaporation. This vent valve is sold under the trade name of "Econo-Vent" and is manufactured and distributed by the Econo-Vent Corp.

Edward Valve & Manufacturing Co.
East Chicago, Ind.

56-57 Oklahoma Building

Elastic Stop Nut Corp.
Elizabeth, N. J.

76 Scientific and Technical Building

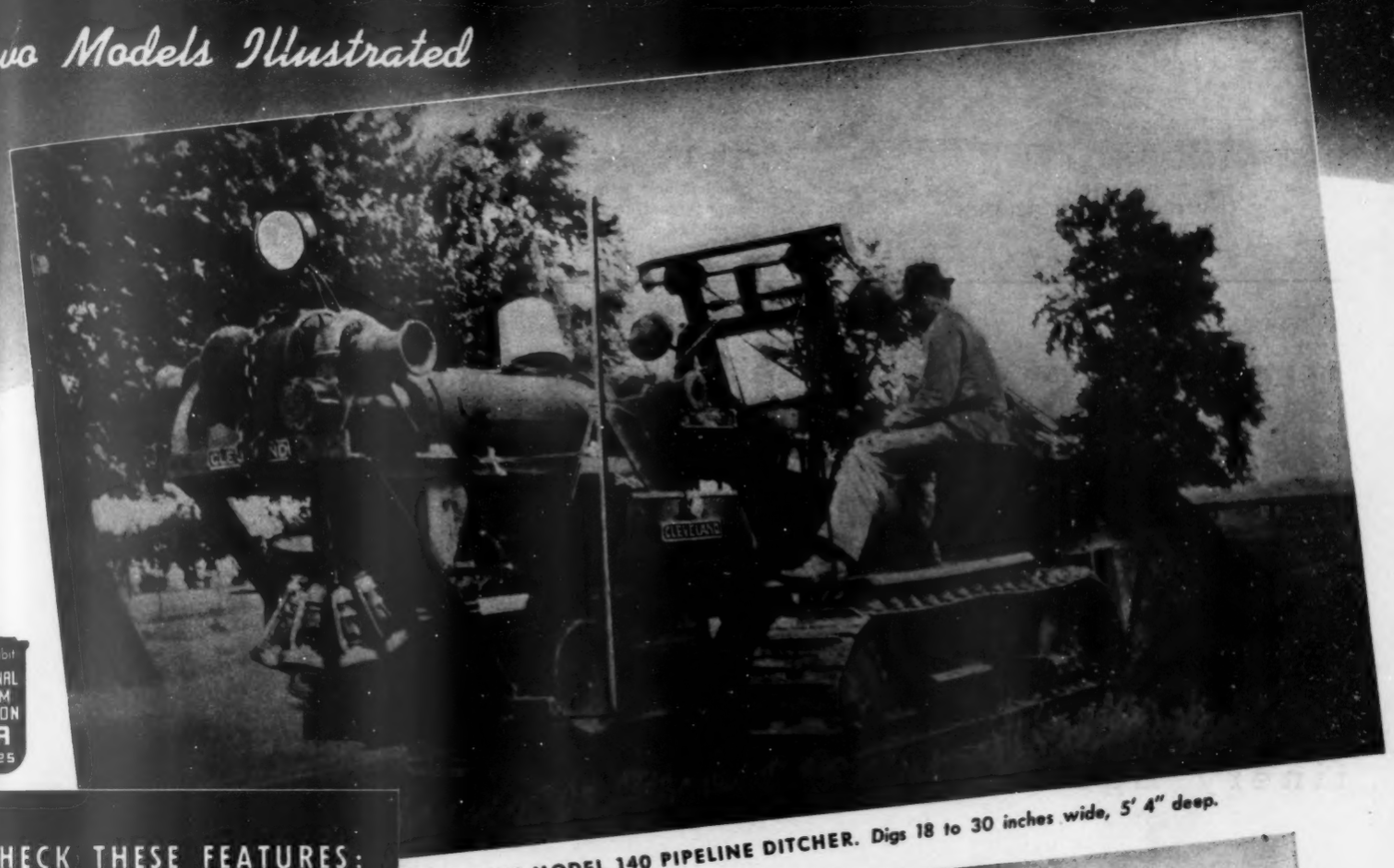
In attendance

H. B. THOMAS, vice president in charge of sales
KENNETH CARROLL, Houston sales representative
H. J. WOOD, sales engineer
L. L. McMASTER, sales engineer

Products displayed: Complete line of self-locking nuts for use on derricks and oil-field equipment of all types. Includes wide range of combinations in type of nut, size, material, and thread system. Every nut embodies the Elastic Stop resilient nonmetallic locking collar which eliminates thread play by holding the thread faces of nut and bolt in constant pressure contact.

You Can't Miss—When You PICK CLEVELANDS!

Two Models Illustrated



THE MODEL 140 PIPELINE DITCHER. Digs 18 to 30 inches wide, 5' 4" deep.

THE MODEL 90. One man operated continuous travel backfiller. Handles pipe, too.

CHECK THESE FEATURES:

1. Speed and fast maneuverability.
2. Dependable, tested full-crawler traction.
3. Wide tread and low ground pressure.
4. Multi-speed transmissions.
5. All enclosed gears.
6. Quick-shift conveyor.
7. Double-strength (carbon manganese) steel in frame, boom and ditcher-buckets.
8. Quick—accessible Unit-Type Construction.
9. Box-type ditcher boom.
10. Long life, low maintenance assured and the dead-weight eliminated by super quality material.

The above are only a few reasons why more and more people are picking Clevelands. Complete information is yours for the asking.

THE CLEVELAND TRENCHER COMPANY

"Pioneer of the Small Trencher"

CLEVELAND, OHIO 20100 ST. CLAIR AVE.

E. I. du Pont de Nemours & Co., Inc.
Wilmington, Del.

159 to 164, inclusive, Oklahoma Building

In attendance

American Glycerin Division

PAUL F. LEWIS, manager
W. E. DANLEY, assistant manager
GEORGE L. WRIGHT, district superintendent
HILL B. WELLFORD, special representative
W. E. DONALDSON, A. G. BOMB, representatives

Explosives Department

DR. W. E. LAWSON, assistant chemical director, explosives department
DR. H. H. HOLMES, eastern laboratory
J. J. HEFFERMAN, manager, Joplin office
W. A. SEYFFERT, assistant manager
R. S. HARDING, district representative

Finishes Division

F. H. CRAWFORD H. H. JAMES
T. J. MITCHELL

Grasselli Chemicals Department

E. H. RIEMAN and two representatives of the Grasselli fly-spray base distributors, John Powell & Co., New York City.

Rubber Chemicals Division

ALLEN F. CLARK L. S. BAKE
H. L. LAWRENCE S. J. DALY

Advertising Department

W. S. ARMSTRONG, JR.

Samples of nylon, "Lucite" methyl methacrylate, coated textiles and "Cellophane" cellulose film flank exhibits of chemical plants and laboratories. Nylon stockings, surgical sutures, sewing thread, and brushes are in the exhibit. Seven booths display neoprene, nitroglycerin, explosives, finishes, wood preservative, fly spray base, products of chemical research. A miniature shaft and rotary drill show the resistance of neoprene chloroprene rubber to the effects of oil. Neoprene rotary, dock, and gasoline-pump hose, packers, stripper rubbers, and valve cups used in producing, distributing, and marketing oil are displayed.

"Nitramon" S, high-velocity gelatin, "Seismogel," and "SSS" electric blasting caps, all especially developed for seismic prospecting, are exhibited.

Nitroglycerin shells, squids, AG time bombs, and an experimental shot recorder are exhibited by the American Glycerin Division. Miniature reeling equipment demonstrates the lowering of explosives into an oil well. A photo mural illustrating the process serves as a background.

Chromated zinc chloride, wood preservative used to make lumber decay resistant, termite repellent, and fire retardant are shown. Framework of a miniature house indicates the vulnerable points of construction which should be protected. Illustrations of derricks and pipe racks stand in the background.

A lethal chamber in which 200 laboratory-reared flies will be shot down with insecticide spray will demonstrate Grasselli Chemicals Department's powerful insecticide, IN 930, in "Pyrin" fly spray base.

Test panels of finishes exposed on a "paint farm" will show the resistance of the company's finishes to sun, grease, abrasion, and salt water. It is planned to exhibit finishes used on tank cars, buildings, homes, derricks, storage tanks, refinery plants, trucks, and passenger cars on a series of 35 mm. slide films.

Electrical Treating Company
Pampa, Tex.

178 Kansas Building

In attendance

P. H. ALLEN I. C. LOOMAN
P. W. CULLEN

The company is exhibiting equipment for removing paraffin deposits from the tubing. The tubing is heated by introducing a current of high amperage and low voltage into the tubing. The current passes down through the tubing, through the special coupling, through the contact springs, and back through the formation and casing. The heat generated melts the paraffin deposits in the tubing so that they may be removed to the surface.

Models heated by transformed current from the ordinary light circuit will be on display. A life-size model showing how the equipment looks installed in the well will also be at the exhibit.

Electric Hose & Rubber Co.
Wilmington, Del.

72 Kansas Building

In attendance

GEORGE T. HAMANN, southwestern manager
VERN WELLS, manager of Chicago branch

Displaying several interesting new developments in hose for drillers, refiners and marketers. An interesting new type of high-pressure hose for core drilling and rotary drilling will be shown for the first time. It is much lighter, yet stronger than existing types. The exhibit will also include several new types of hose for refinery operation and all types and sizes of hose for handling petroleum products from the tanker to the filling station.

Electric Supply Co.
Tulsa, Okla.

10-11-12 Kansas Building

In attendance

R. C. STUEVE, president
R. E. NEWHOUSE, vice president
O. F. SHAW F. W. STOLBA
J. C. BOND

This exhibit will be attended by representatives from factories whose products the company handles: J. D. RANDALL, Paranite Wire & Cable Corp.; WALTER C. HAFFNER, Harvey Hubbell, Inc.; P. E. EBERSOLE, Frank Adam Electric Co.; CARL S. LONG, JR., Hygrade Sylvania Corp., and L. K. LOWE, National Carbon Co.

The exhibit will feature products of these mentioned companies predicated on the electrical materials most generally used by the oil industry in the production, refining, and marketing divisions.

Elliott Co.
Jeannette, Pa.

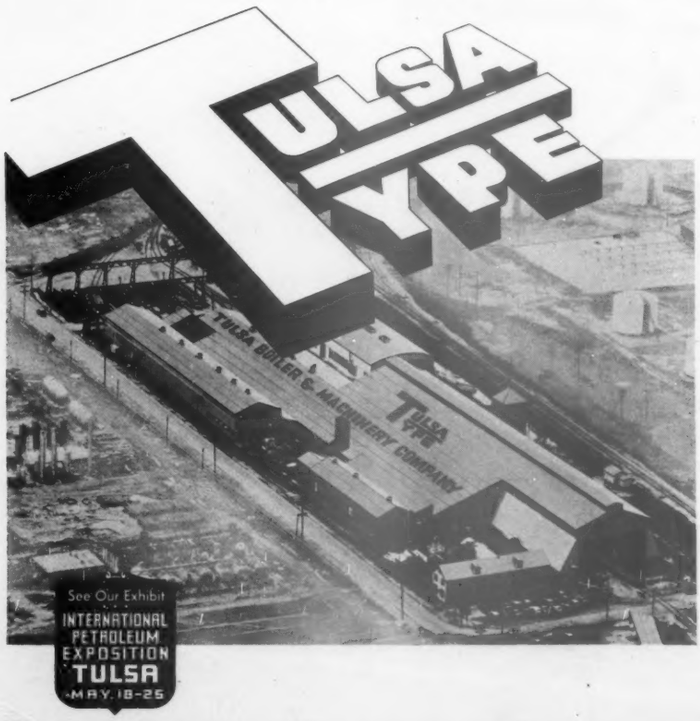
125-126 Oklahoma Building

In attendance

J. N. McCLURE, Tulsa manager
L. A. KUNZLER, Tulsa office
W. E. WIDAU, Kansas City office
F. Q. WILSON, Kansas City office
W. R. KLINKSIEK, St. Louis office
V. H. PETERSON, general sales manager
H. A. PASTRE, Pittsburgh, Pa.

VISIT US AT TULSA

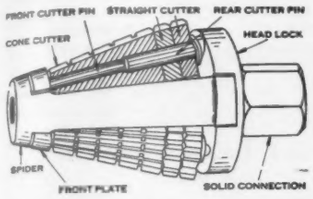
While you are here for the Natural Gasoline Convention and the Petroleum Exposition, we invite you to visit the plant where TULSA-TYPE Gasoline Plant and Refinery Equipment is—*built-right!*



Tulsa Boiler & Machinery Co.

WEST TWENTY-FIRST STREET & UNION AVENUE TULSA, OKLAHOMA

Exhibit features its line of Lagonda and Liberty tube cleaners. The high point is a gigantic tube cleaner model 11½ ft. high. The cutter head revolves as does also a turntable in the body of the cleaner, which in rotating, shows examples of tube cleaners as furnished for still tubes, small tubes, large tubes, and pipes, curved tubes, boiler tubes, and muffled-type cleaners. These tube cleaners all incorporate important improvements, largely obtained by the use of alloy steels and precision finish, which result in increased power and speed. The rapid changes in tubular equipment used in refineries are followed closely with proper sizes and types of Lagonda and Liberty tube-cleaner motors and heads.



The new tapered heavy coke cutter head illustrated has proven especially effective for removing heavy carbon. The success of this head is due to its long tapered cutting section, and the method of mounting the five-section cone cutter on two separate pins, which allows for adjustment to the carbon thickness and reduces wear and tear on the cutter pins. The removable front plate can be made in various sizes to meet either extreme or medium heavy deposits. This head is driven by an extremely powerful motor equipped with thrust bearings to withstand heavy pressure against the motor.

The rest of the company's line of equipment is shown by mural pictures and translite photographs as well as a mechanical book. Equipment featured for oil refineries consists of steam turbines, steam engines, condensers, steam-jet ejectors, water and oil strainers and motors. Power-plant equipment such as deaerating feed-water heaters, turbine generators, separators, non-return valves, grease extractors, etc., will be shown by means of pictures.

Engineering Laboratories, Inc.
Tulsa, Okla.
13 and 14 Scientific and Technical Building
In attendance
W. G. GREEN — J. C. CARROLL
R. P. GREEN — W. R. COLEMAN
S. A. SCHERBATSKOY
JOHN F. PURDOM

Equipment on display: Subsurface pressure gages, subsurface sampler, subsurface thermometer, pipe-line radios, geophysical radios, portable drill, portable cable reels, and mud-sampling equipment.

Standard model, radio pipe-line detector. Used for tracing buried pipe lines containing water, gas, or oil. The exact location and depth can be determined at any point. Will operate satisfactorily over cement, water, dry or mashy ground

One product is a small portable rotary drill unit for use in areas where the terrain and road conditions require extreme portability. The drill disassesbles into several parts, the heaviest of which is the 5-hp. gasoline engine weighing 105 lb. No other part of the assembly weighs more than 75 lb. Drill rod, 1⅝ in. o.d., commonly known as "A" rod, is used and cut into 7-ft. lengths to facilitate a lighter and shorter three-legged mast than would be possible with the regular 10-ft. lengths. Specially designed couplings and water swivel permit a water course of 1⅛ in. throughout the system, which is the inside diameter of the drill rod itself.

A mechanical pull-down arrangement is used which has proved most satisfactory on other type machines. It is clutch-operated and allows the entire weight of the machine to be applied on the drill rod. Additional weight may also be supplied if required.

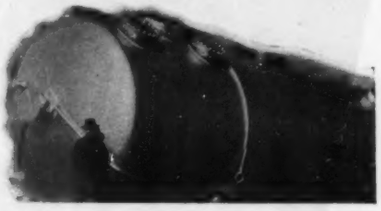
Several types of pumping equipment are offered. These weigh from 65 lb. complete, up to 225 lb. In no case does any one unit weigh more than 103 lb. when disassembled. Choice of pumping unit depends upon the actual drilling problem.

Ensign Carburetor Co., Ltd.
Huntington Park, Calif.
42 California Building
In attendance
PAUL W. ENSIGN — RALPH G. ABBOTT
A. W. SCHULLER

Displaying its complete line of natural-gas, butane and gasoline carburetion equipment. Carburetion equipment for the smallest single-cylinder engine to the largest multiple-cylinder engine is made by Ensign and will be completely covered in the display.

Prominently featured will be the new Ensign Model "R" butane-regulating unit which is very compact and designed especially for small engines and trucks. This unit combines the Ensign patented pressure-regulation and vaporizing unit with a butane-fuel regulating unit all in one piece. Also on display will be the Ensign heavy-duty butane-vaporizing equipment that is manufactured for use on large units such as the Union Pacific streamlined train, the City of Salina, which, it is reported, has been operating very successfully on butane with Ensign equipment for the past year.

Exner-Dodge Packer Co.
Coffeyville, Kans.
226 Oklahoma Building



GASOLINE
& OIL REFINERY
VESSELS

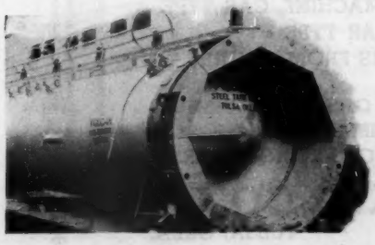
ABSORBERS, FRACTIONATING
AND
STABILIZING TOWERS

HEAT EXCHANGERS
CONDENSERS
STILLS

STACKS, WELDED PIPE
PRESSURE TANKS
BUTANE STORAGE VESSELS

A.S.M.E. AND A.P.I.-A.S.M.E.
CODE CONSTRUCTION

VULCAN STEEL TANK CORP.
TULSA, OKLAHOMA



DESIGN AND MANUFACTURE
OF ALL CLASSES
STEEL PLATE WORK

SHAFER

Self-aligning

Radial-Thrust Roller Bearings

Proved by Years of Performance in Oil Field Service

SPACE 12-13

CALIFORNIA BUILDING

International Petroleum Exposition • Tulsa • • 1940

CONCAVEX

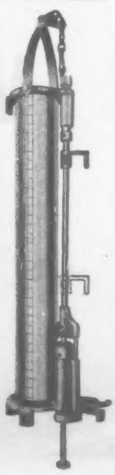
SHAFER BEARING CORPORATION

35 E. WACKER DRIVE • CHICAGO

LUX CO.

OIL GAUGING AND FIRE FIGHTING EQUIPMENT

TULSA OIL THIEF
TULSA SAFETY GAUGING REEL
TULSA SAFETY HYDROMETER CASE
TULSA 6-VOLT CENTRIFUGE MACHINE, CAR TYPE
TULSA HOT WATER BATH, CAR TYPE
ALL TYPES OF EXTINGUISHERS FROM 1-QUART TO 5-GALLON
KIDDE LUX CO. OR DRY ICE GAS EXTINGUISHERS
FOAM GENERATORS AND CHEMICALS
RECHARGES FOR ALL TYPES OF EXTINGUISHERS



W. L. WALKER CO.

1001 SO. MAIN TULSA, OKLA.

Fafnir Bearing Co.
New Britain, Conn.

67-68 Kansas Building

In attendance

W. S. SHIRLEY G. W. TOMPKINS
H. B. DWIGHT W. S. AMES
A. L. MALTMAN

Displaying full line of heavy-duty ball and roller bearings designed for use by the petroleum industry.

George E. Failing Supply Co.
Enid, Okla.

Hall of Science Way

In attendance

J. C. FAILING GEORGE E. FAILING
T. E. FAILING W. T. CALDWELL
R. M. GREER E. L. ALEXANDER
W. J. KIRBY AL BRAITHWAITE
C. F. KELLER PAT M. HOLDEN
W. H. VAN VALKENBERG

The company's "66" slim-hole drilling rig with a capacity for 4,000 ft. features maximum portability without excessive weight. Standard equipment in-

cludes a 60-ft. tubular mast constructed from seamless alloy-steel tubing with safety hydraulic-raising system, however, a 90-ft. mast is available on special order. Gears and sprockets are made from nickel-alloy steels and heat treated for maximum strength and long life. The table has a 12¾-in. opening and has spiral-cut heat-treated bevel gears operating in an oil bath. Engineered for safety in design and quiet operation, this drill unit is modern as tomorrow.

The Holemaster 1000 is a new rugged shot-hole drill for the toughest drilling. Medium in weight, it incorporates the use of an accessible table for easy handling of drill pipe and casing, it is equipped with double free-spooling drums ,a new and faster hydraulic feed, V-belt drives for the rotary table, and a combination hydraulic with pressure or weight feed. The table is equipped with large antifriction bearings throughout and has a 5⅜-in. opening. The entire drill is powered from the truck motor through the company's heavy-duty power takeoff capable of transmitting the entire torque output of the truck motor. The mast is built from seamless alloy-steel tubing, electric welded throughout. Standard equipment includes a 4 by 5 mud pump and the drill is designed for mounting on a 1½-ton truck of popular make but is available on crawler-type tractor or skid.

Fairbanks-Morse & Co.
Beloit, Wis.

223 Oklahoma Building

In attendance

FRANK J. BARTELLA, magneto sales manager, in charge
ED VOGEL J. H. WEITNER

Featuring the Type FM magnetos, recently introduced to the engine trade as an advanced standard in magneto construction. These new units, it is stated, have been enthusiastically received by leading manu-

facturers and operators and have rapidly established exceptional records for field performance.

Of particular interest to visitors is the Type FMO magneto which has been especially designed for the continuous, hard service of oil-field units. Consider-

ably more compact than many conventional models, the Type FMO is available with either standard flange or S.A.E. base mountings and may be adapted without difficulty to practically all power-unit and oil-field engines, regardless of variations in speed and compression.

The heavy-duty operating characteristics are available in the Type FMO magneto without increased size due, largely, to the skilfully engineered use of Alnico, the remarkably powerful new magnetic alloy which has been incorporated into the one-piece, super-rotor to give 50 per cent greater strength than in standard applications. Positive exclusion of all dust and moisture is provided by the completely sealed magneto housing which prevents the corrosion and wear usually resulting from these sources.

Farrel-Birmingham Co., Inc.

Buffalo, N. Y.

191 Oklahoma Building

In attendance

A. G. KESSLER, vice president
JOHN BRANDT, sales engineer

Exhibit will consist of a display unit with photographic translites showing installations of gear units in oil-field service. There will also be translites showing the company's plants and products manufactured at its Buffalo plant for use in the oil-field industry, including gears, speed-reducing units, speed-increasing units, deep-well pump drives and flexible couplings. It will also display various types of Gearflex couplings, small Sykes herringbone gears, Sykes comparator for measuring gear teeth, photographs and engineering data related to its products.

In addition the company is collaborating with the National Supply Co., Toledo, Ohio, to show in its exhibit a Sykes gear-generating machine. This machine will be operated to demonstrate the actual cutting of Farrel-Sykes continuous tooth herringbone gears.

Fibre Conduit Company

New York

11 Oklahoma Building

In attendance

F. P. COMBIER
B. G. LeMIEUX
W. W. SMYTHE
T. W. CONRAD

Exhibiting a nonmetallic low-pressure pipe, to be installed underground, has been especially developed for the piping of brine, called Orangeburg Alkacid pipe.

Salt-water pipe

It is unaffected by alkalies, salts or mild acids, and immune to ground corrosion, electrolysis, etc. It has high coefficient of flow—(Williams & Hazen C=150); mechanical strength characteristics particularly favorable to installation underground. Hydrostatic pressure recommendation is limited to 15 lb. (30-ft. head) covering ordinary gravity-flow pressures.

It has dual economy features. An unusual taper-slope joint possible with this material, combined with light weight and easy to handle lengths (5 ft. and 8 ft.), permit installations at surprisingly low costs. The low prices of Orangeburg Alkacid pipe, is is said, result in very substantial savings in material costs. Many installations have been made in the Kansas, Oklahoma and Texas fields by large oil companies.

The company is represented in the U. S. by its sales agent, Graybar Electric Co., Inc., who have sales offices in all cities, warehouses for prompt service in all districts and representatives available in all domestic oil fields.

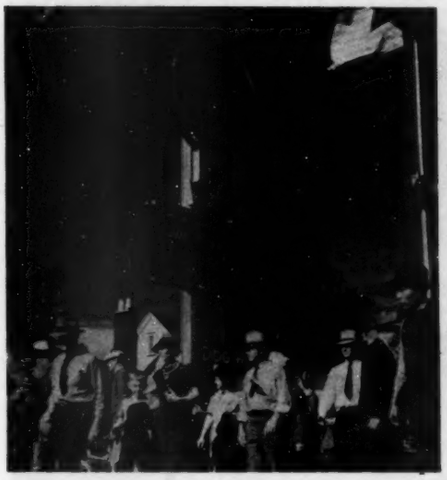
First National Bank & Trust Co.

Tulsa, Okla.

"Dog House," north end of Drake Drive

In attendance

R. OTIS McCLINTOCK, president, and other officers of the bank



The company will welcome visitors with its unique "Dog House," at the north end of Drake Drive, opposite the main entrance gates of the exposition.

Founded at Tulsa in 1895, the bank was 6 years old when oil was discovered in the Mid-Continent at Red Fork in 1901. Four years later came the great Glenn Pool field in 1905, followed by new fields year after year. Upon the discovery of oil the bank immediately took an active financial part in the development of this new growing business. With a directorate that has included many of the most active leaders in the petroleum industry, the company has been in a very fortunate position to acquire an intimate knowledge of the financial requirements of the industry.

The First National has been a source of information on the petroleum industry and the experience of its officers has assisted in the oil-financing requirements of both large and small producers. Banks in every part of the country and throughout the world have sought its files of data and engineering facilities for clients. The bank each day serves all divisions of the industry including producing, pipe line, refining, and marketing.

Flexlume Corporation

Buffalo, N. Y.

41 California Building

In attendance

CHARLES W. MOSS, president
FRANCIS B. BACON, comptroller

Display will cover electrically illuminated neon signs which are particularly adaptable to the petroleum industry. Some exclusive and very effective new-style letters will be illustrated. Porcelain enamel for gas station and other uses will also be displayed. Photographs illustrating the installation of various types of signs and porcelain enamel will also be on display, together with literature giving specifications and general descriptions of the various signs. The booth will be identified by two illuminated neon signs reading "Flexlume Signs."

Fisher Governor Company

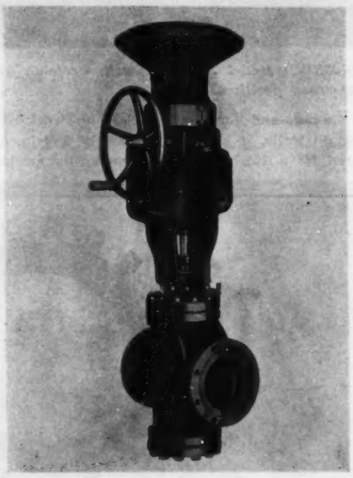
Marshalltown, Iowa

76-77 Texas Building

In attendance

P. A. ELFERS, sales manager
R. A. ENGEL, chief engineer
R. S. STOVER, sales engineer
CHARLES PETERSON, district engineer
K. L. PUFFER, sales engineer

A complete line of the company's liquid-level controllers, pressure regulators, diaphragm control valves, and many other automatic controllers will be on dis-



Unit No. 462, Diaphragm Motor Valve

play. A new diaphragm control valve for high-pressure service equipped with manually-operated topwork assembly will be on display at the show for the first time. This diaphragm control valve will undoubtedly be of considerable interest to those attending.

Foote Bros. Gear & Machine Corp.

Chicago

1-2 California Building

In attendance

F. A. EMMONS, vice president and general sales manager
H. J. BRAUN, special representative Five-Point Deephard steel specialties
M. E. LANDRY, Foote Brothers representative
RAY F. RIDDLE, Foote Brothers representative

In addition to a display of industrial and motorized speed reducers, many interesting and unusual specimens of low-carbon and alloy-steel parts processed with the revolutionary "Five Point" Deephard process will be on exhibit. Samples will show the high Rockwell "C" hardness obtainable in parts treated by the process, and visible proof of an unusual bonding of a hard-wear zone to a tough and ductile-wear zone can be seen.

Oil men interested in the vital problem of combating excessive wear and shock failures will want to know how the use of "Five-Point" Deephard processed steel parts will increase the wear-life of equipment.

Four Wheel Drive Auto Co.

Clintonville, Wis.

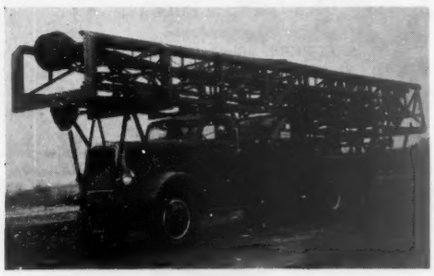
Block N

In attendance

W. A. OLEN, president and general manager
R. H. SCHMIDT, general sales manager
F. M. HIGGINS, advertising manager
S. H. SANFORD, manager of western sales division
W. C. MERRILL, sales representative
G. W. MURRAY, sales representative

An improved type of oil-well servicing unit comprising an FWD Model MJ6x6 six-wheel-drive truck for mounting a portable, telescopic derrick will be featured. Considered one of the most modern oil-well servicing units, it can travel almost anywhere a trac-

tor can go, incorporates numerous mechanical improvements and is completely equipped for pulling



40-20N-3-FWD Model MJ6x6 oil-well servicing unit in over-the-road position

rods, tubing, and for general clean-up work at producing oil wells. It has a wheelbase of 240 in. and is powered by a 152-hp. engine. Among its mechanical improvements are a new torque-apportioning center differential which assures a distribution of power to the axles in proportion to the weight carried by the axles. In the oil-well servicing unit the distribution of power is 1-5 to the front axle and 4-5 to the rear axle.

The derrick is made in two sections, one telescoping into the other. When in transit, the derrick is supported horizontally on the truck above the winch and cab, and the overall length is 54 ft. and the overall height 12 ft. 5 in., meeting road transportation requirements. When fully erected, the derrick is 84 ft. in height and is raised by jack screws operated through the truck engine by a power takeoff. Operating power for equipment is furnished by the truck engine.

The company will also display its new supertransmission used in its trucks of the "M" series which range in capacity from 6 to 25 tons in both four-wheel and six-wheel drive with optional diesel or gasoline power plants. Especially designed for heavy-duty service, the new transmission has a torque capacity in excess of the largest truck engines available, and is arranged so that the regular five speeds provided in the gear box may be supplemented with a two-speed auxiliary that provides for 10 speeds forward and two speeds in reverse.

Foxboro Company

Foxboro, Mass.

3-4-5 Scientific and Technical Building

In attendance

T. B. BURRIS — J. B. McMAHON
R. A. BRISTOL — E. E. KLEIR
H. G. GRIFFITH — L. W. PARTEN
E. L. STARK — C. E. MASON
M. A. SCHREINER — J. J. BURNETT
E. R. HICKMAN — E. A. THOMAS
J. HEINZERLING

Featuring a complete line of instruments for the measurement and control of refineries and gasoline plants, and a complete line of oil-production instruments.

Fram Corp.

East Providence, R. I.

26-27 California Building

In attendance

T. H. BELLING, general sales manager
FRANK MAUPIN, district manager, southwest territory
CARL M. JOHANN, assistant sales manager
TOM SCOTT, field engineer
ERWIN BENZ, engineer

A panoramic background, composed of photographs of the company's filters in actual operation, will show the visitor to the exhibit where he can use them to save money on his oil and his motor operating costs. Many of these views are of different types of stationary engines —others will show tractors, trucks, and other mobile equipment in operation.

A complete range of products, arrayed for easy visibility, and numerous complete descriptive literature will give the more interested observer the information he needs to acquaint himself with the company's story of clean oil, savings in operating costs, savings in motor life.

France Packing Company

Tacony, Philadelphia, Pa.

Booth 72 Texas Building

In attending

J. A. McPEAK — J. M. FULLER

Exhibiting a complete line of floating type metallic packing for use on all types of engines or compressors regardless of speed, temperature, or pressure.

Franks Machine Co.

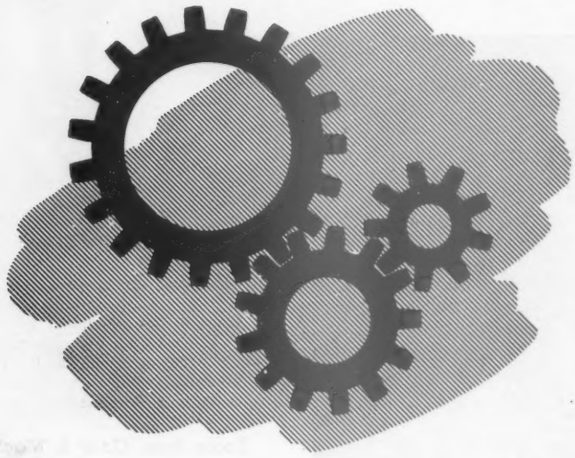
Enid, Okla.

Block Z

In attendance

JOE FRANKS — GEORGE FRANKS
CLAUDE FRANKS

Model "F" standard drilling machine, mounted on a V-8 Ford truck, powered with the 95-hp. truck motor. The machine is equipped with a 24-ft. 6-in. folding mast, sliding hydraulic drill head, 4 by 5 FXF Gardner-Denver pump. The machine is used for seismograph shot holes, shallow core drilling and water-well drilling.

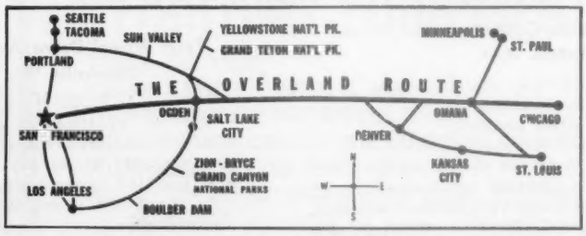


Geared to top speed

● With the finest freight equipment available . . . with fast schedules . . . with a national organization of experienced traffic men . . . the Union Pacific Railroad is geared to handle your shipments speedily, efficiently and economically. Our services are at your disposal. Call on us at any time.

UNION PACIFIC OVERLAND ROUTE

SHIP VIA THE STRATEGIC MIDDLE ROUTE



L. T. WILCOX
General Freight Traffic Manager
Omaha, Neb.

THE PROGRESSIVE
UNION PACIFIC RAILROAD

Franks Mfg. Corp.

Tulsa, Okla.

Block Z

In attendance

H. H. FRANKS
W. R. BROSN
L. W. HOBLE
W. B. WOODY
J. W. HORNBROOK
A. W. CONWELL
J. M. RUTLEDGE
M. PALLEIN
CARL WHITE, JR.
R. M. WHITE
A. V. SIMONSON
W. G. NEWHOUSE
FERN H. MASON
JAMES MOON
A. E. MASEK
G. S. BRENEMAN
H. L. PALMER

Exhibiting one entirely new piece of equipment introduced for the first time, an 84-ft. telescoping servicing derrick mounted on a truck. The unit contains either a single or double-drum Franks servicing winch, crown block and lines remain strung. The derrick is raised and extended by a built-in mechanical device powered by the truck engine. The winch is also operated through patented power takeoff by the truck motor. The derrick can be raised, extended, locked, and guyed within 20 minutes. Capacity of tubing platform is 6,500 ft. of 2½-in. tubing. The unit is designed to service approximately 100 wells per unit, eliminating individual servicing derricks.

The three positions of Franks telescoping 84-ft. derrick. Top inset, over-the-road position. Center inset, derrick being raised to upright position for telescoping to full 84 ft.

The company will also exhibit its "slimhole," portable rotary drilling unit with self-raising derrick, crown block, swivel, kelly, rotary table, draw works, pumps, and power, all unitized on a truck. The manufacturer claims the unit eliminates the cost of an individual well derrick; permits faster rigging up and tearing down because decking and flooring is all the rig-up necessary and crown block and tongs remain permanently hooked up; moves from location to location under its own power without auxiliary truck or tractors; uses less water, fuel, and only requires a three-man crew.

Frick-Reid Supply Corp.

Tulsa, Okla.

Frick-Reid Building

Block 1, west side of Drake Drive

In attendance

F. J. KOPP, Fort Worth, Tex.
RAINEY ELLIOTT, Dallas, Tex.
A. A. HOPPER, Bartlesville, Okla.
L. W. SETH, Fort Worth, Tex.
RALPH KEERAN, Alice, Tex.
H. E. WAGNER, Bradford, Pa.
W. F. FREEMAN, Owensboro, Ky.
J. K. GUINN, Wichita, Kans.
J. W. KAYE, San Antonio, Tex.
C. B. MOORE, Houston, Tex.
J. K. LYTLE, Chicago
B. V. BROWN, Dallas, Tex.
G. S. EMERSON, Fort Worth, Tex.
F. M. FISHER, Pittsburgh, Pa.
A. G. BASTIAN, Longview, Tex.
J. G. WHITE, JR., Mount Vernon, Ill.
L. R. ROBERTS, Wewoka, Okla.
W. L. McLAREN, Grandville, Mich.
V. V. McGREW, Houston, Tex.
H. D. STANLEY, Wichita Falls, Tex.
M. L. EUBANK, Bunkie, La.
W. F. MOREHART, Hobbs, N. M.
H. C. WHITE, Shreveport, La.
L. J. DAVIS, Hutchinson, Kans.
R. T. RAGSDALE, Corpus Christi, Tex.
H. L. WILKINS, Mount Vernon, Ill.
C. W. MOORE, Odessa, Tex.
J. W. TRUE, New York
M. A. PARK, New Orleans, La.
W. H. GREER, Owensboro, Ky.
M. H. DEMPSEY, Grandville, Mich.
D. T. OTTINGER, Houston, Tex.
J. K. WADICK, Shreveport, La.
J. A. EVANS, JR., El Dorado, Ark.

In this building, and in the open area immediately back of it, will be shown products of 12 different companies for whom Frick-Reid acts as distributor. Included will be:

Joseph Reid Gas Engine Corp.—gas engines.

Cabot Shops, Inc.—pumping units.

Beaumont Iron Works Co.—casing and tubing heads.

Century Electric Co.—electric generators and motors.

Axelson Manufacturing Co.—pumps and sucker rods.

Midwest Piping & Supply Co., Inc.—welding fittings.

Republic Rubber Division of Lee Rubber & Tire Corp.—belting and hose.

Revere Copper & Brass, Inc.—brass tubes used in refinery and gasoline plants.

Whitlock Cordage Co.—manila rope and cable.

Gilmore Wire Rope Division of Jones & Laughlin Steel Corp.—wire rope.

Linear Packing & Rubber Co., Inc.—packing.

Smith Welding Equipment Corp.—welding equipment products.

All of these manufacturers will have factory representatives attending. There will be a large number of Frick-Reid field representatives brought into Tulsa, including many store managers.

DODGE Diamond "D" Friction Clutches will insure positive power control under any speed or service condition . . . They are designed with ample safety factors to accommodate liberal momentary overload . . . These clutches are dependably and economically adapted to power transmission service as well as for application on various types of machinery used in oil production.

DODGE MANUFACTURING CORPORATION
Mishawaka, Indiana, U. S. A.

Products

Base Plates • Bearings • Belt Governors • Belt Tighteners • Clutches, Friction • Conveyors • Countershafts • Couplings • Power Drives • Floor Stands • Gears • Pillow Blocks • Pulleys • Shafting • Sheaves • Take-ups • Variable Speed Transmissions.

Send for your copy of Bulletin A-321 entitled "Power Drive and Bearing Units". Write today.

DODGE
MISHAWAKA

THE Right Drive FOR EVERY JOB

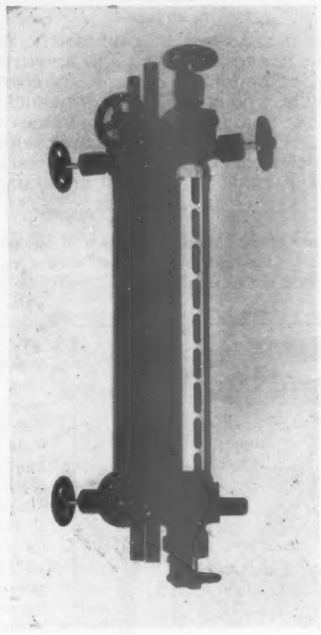
Frick Company, Inc.
Waynesboro. Pa.
30-31 California Building
In attendance
V. J. SPARKS, Kansas City
L. C. NETTLESHIP, Oklahoma City
GEORGE BASORE, Oklahoma City
J. C. RUST, Dallas
A. E. ROEBKE, St. Louis
A. A. HOPPE, special representative
TERRY MITCHELL, Waynesboro, Pa.

Refrigerating engineers are finding that the easiest way to reduce power bills is to lower the head pressure against which the machine must work, by the use of a device known as a purger. This separates any air or other noncondensable gases present in the system, and allows them to be blown off without appreciable loss of the refrigerant itself.

This company is exhibiting a new and improved kind of purger known as the unit type. This is made in two sizes; the purger shown is known as the "Little Giant," (illustrated). The design incorporates all the operating valves in unit assemblies at the top and bottom of the shell, and makes for quick installation as well as greater reliability and convenience. Inside the shell is a coil kept cold by the direct expansion of a small quantity of the refrigerant, which is drawn into the main suction line of the system. Ammonia or Freon-12 entering the device is condensed by the cold, while the air or other noncondensable gases collect above the liquid. The liquid drains by gravity to the receiver. The sight glass is provided which enables the engineer to tell when sufficient gas has accumulated to warrant its being blown off through opening the purge valve.

This improved purger operates under the full head pressure of the system, with the result that all except a very minimum amount of the refrigerant is condensed. It is nothing unusual, it is said, for one of these purgers to show savings of 5 to 15 per cent in the horsepower required for driving the compressors in a refrigerating, ice-making or air-conditioning system.

The device is equally serviceable on ammonia or Freon-12 systems, and it is reported has proved its ability to pay for itself in a short time. The "Little Giant"

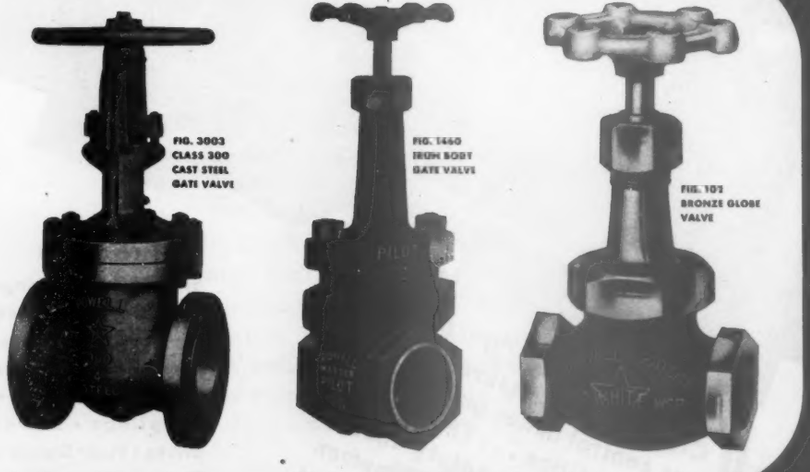


is described as the first purger designed for use on plants of medium and small sizes.

POWELL VALVES

ARE RECOGNIZED AS *Tops* IN PERFORMANCE IN THE OIL AND GAS INDUSTRY

Outstanding in design and workmanship – and made from laboratory controlled materials, Powell offers a variety of valves for oil-well, field, and refinery service. These bronze, iron, and steel valves are noted for their toughness and high resistance to stress and other severe working conditions.



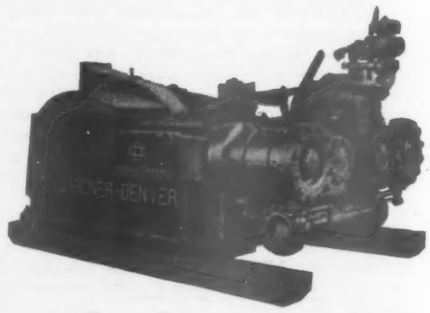
THE WM. POWELL COMPANY
CINCINNATI, OHIO

● WRITE FOR FURTHER INFORMATION AND DETAILS. THE POWELL ENGINEERING STAFF WILL GLADLY ASSIST YOU IN SOLVING YOUR SPECIAL VALVE PROBLEMS.

Fulton Sylphon Co.
Knoxville, Tenn.
20 Kansas Building

Gardner-Denver Company
Quincy, Ill.
(In conjuriction with Continental Supply Co.)
Block 6
In attendance
H. G. MYERS — E. F. SCHAEFER
R. J. MacFARLAND — R. J. BAUER
G. J. MacFADDEN — H. K. PINKERTON

One of the most interesting items to be displayed is the Gardner-Denver 14 by 14 horizontal steam drill-



ing engine. Other display units include a 9 by 8 vertical steam drilling engine, a 16¼ by 8 by 20 steam slush pump, and a 7¼ by 20 power slush pump.

All of the above-listed equipment will be in operation at the exhibit, and ample opportunity will be given the visitors to inspect all running parts as they function in meeting the actual conditions of the field.

The Garlock Packing Company
Palmyra, N. Y.
59 and 60 Texas Building
In attendance
R. I. HAMILTON, metal packing representative
FORD WILDERS, advertising department
H. J. KUHN, St. Louis district manager
J. M. FOLEY, sales representative
G. C. WIEDA, sales representative
G. A. PATTILLO, sales representative

Exhibiting a general and complete line of mechanical packings including fibers, asbestos, semimetallic

and metallic for use in the petroleum industry. The new lattice braid is being shown for the first time, an entirely new principle in the fabrication of braided packings and from which a great deal in the way of service is expected.

Flange jack

Another new item is the Garlock flange jack, a tool designed for spreading the flanges in a line of pipe to permit the removal of an old gasket and insertion of a new one. These flange jacks permit this change of gaskets with a minimum of time and the entire absence of heavy labor or strain upon the fittings. The time of expensive shutdowns for applying new gaskets is reduced to minutes with the Garlock flange jack. In operation there is no damage to the flanges themselves nor any misalignment or springing of the pipe line. These flange jacks are a distinct innovation and since their recent introduction have achieved a wide distribution in the oil field.

Gates Hardware Company
Tulsa, Okla.
13-14-15-16 Kansas Building
In attendance

F. E. GATES — W. C. GATES
G. H. GATES — A. W. COULTER
C. R. PENDLETON — W. L. HICKS
C. E. DE VERSE — H. E. FITZER

Factory representatives:

E. J. CHAMBERLAIN — A. F. HUGE
ROBERT BALLIET — T. L. ROBBINS
JACK COLE

Various oil-field hardware items such as National drills, Spartan hack saws, Nicholson files, Fox shovels, True Temper tools, Lufkin tapes, Eveready Prestone, Yale and Master padlocks, Plumb tools, Simplex jacks, Minnesota mining abrasives, Toro and Pennsylvania mowers, Crescent tools, Winter Brothers taps and dies, Ecolite lanterns, Ridgid and Trimco tools, Billings &

Spencer wrenches, Allen and Gott water cans. These are only a few of the thousands of items this company stocks in Tulsa for immediate shipment. Located at Tulsa for 21 years, the company has become familiar not only with the complete hardware requirements of the oil industry but also entirely conversant with the industry's manner of handling the office routine and billing of its needs. Instead of attempting to exhibit at the oil show a smattering of the many oil-field hardware items the space will show the names only of more prominent factory lines carried, some of which are listed above. A very few of the outstanding lines will be represented by actual sample goods.

This year there is a new wire-rope clip called the Laughlin safety clip, which develops efficiency up to 95 per cent of the capacity of the rope without damaging the rope by pinching or crushing. Considerable space will be given to showing the National and Winter Brothers line of drills, taps and dies. The Lufkin Rule Co. has developed a new long-wearing chrome tape which will be shown. Some of the new True Temper tools, such as axes, weed cutters, hammers, and Fox shovels will be on display. A Spartan saw representative will demonstrate the qualities of this hack-saw line.

Gates Rubber Co.
Denver, Colo.
56-57 California Building
In attendance

E. J. DAVIS, manager, St. Louis district
W. J. NOELLSCH, manager, Kansas City district
L. C. DOOLITTLE, manager, Dallas district
F. L. CRAIG, manager, Houston district
T. D. WILLIAMSON, manager, Tulsa district
FRANK TRAVER, manager, molded rubber goods division
DICK LAMB, molded rubber goods laboratory
ED MOE, manager, molded rubber goods laboratory
FRANKLIN FRENCH, molded rubber goods laboratory
LEE WITZENBURG, assistant manager of industrial division

Displaying molded rubber goods commonly used in the petroleum industry: Packers, pipe-line scrapers, cups, etc. Many of these products are made from neoprene, the new synthetic rubber which is not affected by oil.

A small machine will demonstrate the uses of rub-

BADGER EXPANSION JOINTS

STAINLESS STEEL to give resistance to the high temperatures used in refinery process lines

PACKLESS to eliminate the need for any servicing throughout the life of the joint

COMPACT to fit into cramped quarters and reduce to a minimum insulation requirements

BADGER engineers developed these expansion joints especially for refinery work. They brought to the design and fabrication of these packless joints more than forty years' continuous experience in pioneering and development. They were responsible for the Directed Flexing feature, a design of corrugation that promotes better flexing action and definitely prevents the localization of flexing stresses, which tends to take place in old-style, straight-sided corrugations.

BADGER Expansion Joints are the experienced and perfected joints. They are the better buy.

E. B. BADGER & SONS CO.
75 PITTS STREET — BOSTON, MASS.
Agents in Principal Cities

ber packers and another machine will use a piece of rubber to demonstrate adhesion.

In addition, a large V-belt display machine will be in constant operation, showing the various applications of V-belts for transmitting power.

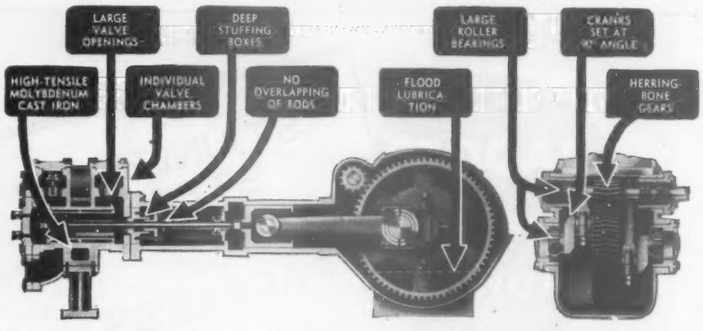
Gaso Pump & Burner Co.
Tulsa, Okla.

Block W, Skelly Drive

In attendance

T. J. FLANAGAN, president
M. J. FLANAGAN, vice president
H. F. STOVER, secretary-treasurer
T. H. FLANAGAN, purchasing agent
H. A. WIENECKE, JR., and GEORGE W. DREYER, sales engineers
A. V. SIMONSON, New York, export sales
J. E. WINGER, foundry manager

The company will display its complete line of Gaso oil-industry pipe-line pumps. This company is this spring celebrating its Silver Jubilee, as for 25 years it has been building oil-industry pumps of which the outstanding characteristics have been few, large parts and extra sturdy and durable construction.



The accompanying sectional drawing indicates the important mechanical features of present day Gaso design and construction, which include individual valve chamber for each valve, extra large valve openings and fluid passages to insure proper filling at highest speeds, extra deep stuffing boxes giving tightness without undue tension, long frames to prevent overlapping of piston rods, herringbone gears center mounted on shafts to equalize loads on bearings, cranks set at 90° angle to give overlapping piston stroke and insure smooth flow, extra large roller bearings for crank, pinion and worm shafts each operating in separate housing sealed off from crankcase oil, and lubrication by means of oil bath in enclosed crankcase.

The company's newest and largest pump will be shown in actual operation as will also several other models. It is a 12-in. stroke pump with interchangeable fluid liners and capacity ranging from 176 bbl. per hour at 1,500 lb. pressure, to 592 bbl. per hour at 500 lb. pressure.

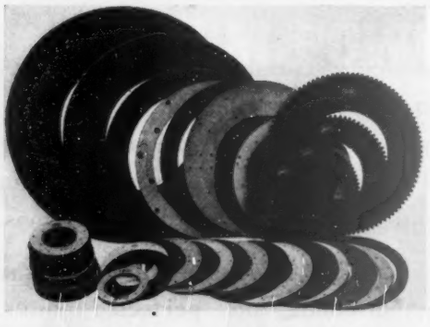
Gatke Corp.
Chicago, Ill.

23-24-25 California Building

In attendance

THOMAS L. GATKE W. O. BARTON
J. D. JOHNSON, JR. LEE BOSWELL

Exhibiting many important developments in brake linings, clutch facings, and molded fabric bearings. An improvement of special interest is clutch facings with



integrally molded gear teeth, which eliminate the old method of assembling friction facings on metal-backing plates. The teeth are molded the full thickness of the facing—greatly increasing the wear area and eliminating wear to the driving ring.

Also exhibited for the first time will be a unique company development of asbestos-friction materials that promises marvelous improvement on many brake and clutch applications. The company's molded fabric bearings, which will be on exhibit, have, it is reported, a marvelous record of long service and economy on many difficult oil-field applications that merits attention of everyone who operates or manufactures oil-field equipment.

General Electric Co.
Schenectady, N. Y.

100-101-116-117 Kansas Building

In attendance

E. F. PATTERSON and R. G. SMITH, Tulsa office
F. B. HATHAWAY and RALPH RANDALL, Oklahoma City
I. T. HOCKADAY and G. W. CURRY, Houston
W. B. CLAYTON, H. A. WHITE, R. W. VAN KIRK, W. N. PETZING, A. E. ALLEN, and A. H. KEEN, Dallas office.
J. E. HAM, Chicago
H. S. SHERMAN, St. Louis
H. C. HILL, Los Angeles
W. G. TAYLOR and J. J. HUETHER from Schenectady.

An unique operating exhibit will show visitors the part that application engineering plays in the selection of oil-well-pumping motors best suited to conditions encountered. Visitors will also be entertained by many of the interesting General Electric "House of Magic" demonstrations such as "Visible Sound," "Audible Light," "Voice Controlled Train," and "Kidnap Detector."

The operating exhibit showing how to select the motor best suited to the job consists of a large backdrop, across the top of which there will be five windows listing typical operating conditions to be considered in the selection of a well-pumping motor. Four large, dark circles will be lined up under these windows, and four General Electric splashproof induction motors for oil-well-pumping drive (Types K, KF, KG, KR) will be mounted underneath the circles.

Visitors may tell an operator, seated at a control desk to one side of the board, the particular conditions of their job. He then selects these conditions in their varying degrees, on his board and the facts appear written in the windows. A switch is thrown and the motor best suited to the set of conditions listed begins to operate. Simultaneously, an application picture of the same type motor appears in one of the large, dark circles.

Oil-field-type starters (Type CR70088-A1HP) including line-switch contactors, time switch, lightning arresters, and manual-automatic selector switch in a weatherproof case; Type HT, three-phase transformers for oil-field service; and cable samples showing types especially adapted for oil-field service are some of the other products that will be shown.

The General Electric arc-welding demonstration truck will also be in operation. It will exhibit a complete line of electrodes for welding of mild steel, high-tensile steel, or cast iron as well as an a.c. transformer type arc-welder, d.c. gas-engine-driven and motor-driven arc welding equipment. This truck will be located in the Center Block R facing Oklahoma Drive.

General Paint Corp.
Tulsa, Okla.

40 Texas Building

In attendance

WILLIAM D. TEUBNER, vice president and division manager
E. R. (BILL) CLUFF, sales manager
GEORGE HOWARD RALPH NACKERUD
R. A. McCARTHY

Featuring its industrial paints and protective coatings. The following materials, long identified with the petroleum industry, will be on display: L & S portland cement paint, for the protection of galvanized iron, brick, and stucco buildings; may be applied directly to new galvanized iron without pretreatment. Bituluminin aluminum paint for exterior finish of storage tanks, structural steel, and other exterior surfaces upon which an aluminum finish is desired. There will be a display of fume-resisting building paints, synthetic machinery and equipment enamels of the newest type, as well as Biturine coal-tar protective coatings for underground pipe lines, storage tanks, etc. Display will also feature the Hill-Hubbell method of mill coating and wrapping of steel pipe.

George Valve Co.
Saegertown, Pa.

75 Scientific and Technical Building

In attendance

J. G. REICHEL, president
H. A. HENGGI, vice president

Exhibiting the company's tank-car outlet valve which has been redesigned to obtain greater simplicity and efficiency. This quality product is now much smaller

and lighter, and its proven operating efficiency has been increased by elimination of a great number of parts. Positive, droptight closure, and thorough seat-wiping action are assured by adoption of an integral seat, and a slight change in design of the head and wipers. As the valve closes, the stem turns inside the head, and since the stem is radiused the valve "floats" down and finds its true seat. Just before the valve seats, the wiper-cup lip drags across the face of the seat with full contact, and effectively removes all scale and other loose matter. Meanwhile, the wiper ring is forced against the machined shoulder adjacent to the seat to shut off any further flow or seepage.

L. H. Gilmer Co.
Tacony, Philadelphia, Pa.

47 California Building

In attendance

M. R. OBERHOLZER, sales manager
D. A. CANT, Oklahoma district manager
C. P. WILLIAMS, Texas district manager
A. K. SCHINDEWOLF, Louisiana district manager

Products exhibited are V-belts in both multiple and fractional horsepower sizes, and sheaves; Kable Kord flat belting, in endless form and in rolls for running lengths.

Gilbert & Barker Mfg. Co.
Springfield, Mass.

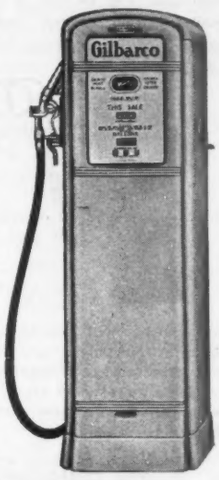
189-190 Kansas Building

In attendance

W. C. LEITCH, sales manager, pump division
W. M. HARKS, midwestern regional manager
R. L. FAUBION

Equipment on display will be two Gilbarco Model 96 Calco-Meter pumps complete with Towerlites and

one Model 96 Calco-Meter known as the "Million Gallon Pump." The latter will be in operation. Although the outside of this pump has been repainted white for color spotlighting, it is the same pump that has delivered over 1,000,000 gal. and is still 100 per cent accurate. None of the original parts have been replaced.



As the company is celebrating its seventy-fifth year in business in 1940, the theme of the display will carry two thoughts — the seventy-fifth anniversary and the international scope of its business today. Red, ivory and black is the color scheme used throughout the exhibit. Back of the "Million Gallon Pump" is a curved glass wall made from glass bricks. On each side of this will be four columns containing glass panels, advertising trademarks of a few of the various oil companies who use Gilbarco M96 Calco-Meters. On the extreme ends of the booth are two panels displaying a few foreign dial faces used on Gilbarco Calco-Meters signifying that Gilbarco serves motorists accurately the world over. Black plush drapes are used across the whole back of the booth making a very neat and attractive exhibit.

Graver Tank & Mfg. Co., Inc.
East Chicago, Ind.

Hall of Science

Methods for prevention of evaporation losses during storage of gasoline will be predominately featured in the exhibit which will include a miniature reproduc-

tion of a welded steel tank complete in every detail and on which will be placed the company's expansion roof—the latest development for conserving gasoline during storage periods. The roof will expand and contract exactly as it does in the actual equipment.

In addition to this miniature working model, various charts and graphs which have resulted from actual conservation tests conducted by the company will be displayed, together with large photographs of its equipment built for the petroleum industry. This pictorial display will include a view of the two 168-ft. diameter storage tanks recently erected for a large oil company. Each of these tanks has a capacity for 182,000 bbl. and it is said they are two of the largest steel oil-storage tanks ever erected in this country.

Grant Oil Tool Co.
Los Angeles, Calif

257-258 Oklahoma Building

In attendance

J. B. SHAW, general manager
LLOYD G. ENSIGN, export manager
ROLAND E. SMITH, foreign sales

Shown for the first time will be the company's roll-

YOU GOTTA KNOW HOW!

You gotta know how . . . whether it's baseball or business . . . The first step in knowing how to keep rolling stock and drilling apparatus moving in the oil industry is to get the right equipment to do the job. A heavy duty, dependable Timken 6-Wheel Tandem Drive Unit will do the trick — make your tough tasks look easy — save you time, trouble and money, too.

Ask for Timken 6-Wheel Tandem Drive Units when you buy transportation equipment.

TIMKEN AXLES

The Timken-Detroit Axle Company • Detroit, Mich.
Wisconsin Axle Division • Oshkosh, Wisconsin

ALL OVER THE WORLD
THEY PUT IT UP TO
EASTERN
FOR MIXERS

Wherever mixing enters into the processing of materials, Eastern Engineering staff work has been conspicuously successful. For economy of operation and maintenance, and exact meeting of engineering requirements, it is unquestionably the smart thing to do to "put it up to Eastern."

MODEL S E G—9 SIDE-ENTERING TYPE

Write for catalog describing complete line of portable, vertical, side entering, high-speed and geared models of mixers. Includes description of our newly designed midget centrifugal pumps.

EASTERN ENGINEERING CO.
55 Fox Street, New Haven, Conn.

SEE OUR EXHIBIT AT THE INTERNATIONAL PETROLEUM EXPOSITION

er-cutter hole enlarger, latest in a long line of oil tools designed and built by the company. Greater strength is claimed for this new tool, which consists of a body with three arms equilaterally placed thereon, with a roller cutter similar to a rock-bit cutter placed on the end of each arm. The arms are strong and positive in their action. When open, these arms are supported by a solid steel mandrel behind the arm, as well as supported against upward stresses.

There will also be shown the company's hydraulic expansion wall scraper, underreamer and rotary, hole enlarger, roller-bearing cutter reamer, hydrostatic bailer, hydrostatic perforation cleaner, liner hanger, catline grip, and adjustable liner puller, as well as the lightning-change cement head.

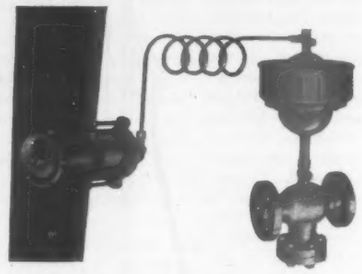
Greenfield Tap & Die Corp.
Greenfield, Mass.
95-96 Kansas Building
In attendance
DAN M. BELL, Southwest representative
HAROLD TORIAN
GEORGE KAVANAUGH, service engineer
GLEN STIMSON, manager of gage department
RAY HELBIG, advertising manager

Featuring an exhibit of production tools used in the manufacture of equipment for the oil industry. The center of the exhibit is a collection of oil-country gages of which the company is one of the more important sources of supply for the industry.

The company is also featuring a maintenance-tool exhibit, the chief attraction of which is its famous "Little Giant" pipe wrench which is widely used in the oil industry.

Grove Regulator Company
Oakland, Calif.
36 and 37 Texas Building
In attendance
M. H. GROVE — D. H. ANNIN
V. B. GRESHAM — M. T. KAPELE

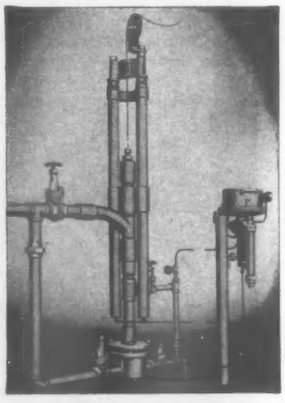
The company's new dome loader or pilot valve, illustrated, will be one of the units featured in the exhibit. Other entirely new and greatly advanced



developments will also be shown for the first time. These will include a new type pressure-relief valve, new fully fabricated regulators of the back-pressure and pressure-reducing types. A new type diaphragm motor valve with new fabricated construction will likewise be displayed.

The Guiberson Corporation
Dallas, Tex.
217, 218, 233, 234, Oklahoma Building
In attendance
S. A. GUIBERSON, JR. — C. E. TWEEDLE
ALLEN GUIBERSON — E. D. WILDE
G. G. GUIBERSON — R. E. KENNGOTT
R. G. TAYLOR, JR. — R. L. McADAMS
A. PRANGER — T. H. PIKE, JR.
H. U. GARRETT — V. G. BRETTMANN

Equipment to be exhibited: Gas-lift demonstration, producing from below the surface and visualizing results obtained with this method of production. This vivid and clearly explained exhibit employs two types of equipment—first, the flow valve, and second, the surface - controlled intermitter. Drillers will find interest in the action of the rotating blowout preventer and drilling head. This tool will also demonstrate "on the job" performance.



Surface-controlled intermitter

In addition, there will be the new drillable aluminum packer — standard packers—tubing and casing swabs—tubing catchers with and without anchors—spiral tubing packers and spiral casing packers—tubing spiders—wire-line oil savers—sucker-rod strippers. The entire display will be one of tools in action.

New equipment exhibited: Gas-lift equipment: Type C flow valve operates solely by differential pressures, both in opening and closing. Fluid velocity does not affect operation. In mechanism it is extremely simple, only one moving part. Field tests, it is reported, show use of less gas per barrel.

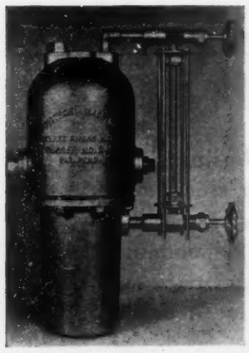
Surface-controlled intermitter designed chiefly for low-productivity wells, and permits the producer to control the slug size from the surface. Only one setting of the time control is required for clocklike consistency of fluid delivery. A remarkable increase in production from extremely low-productivity wells is reported.

Rotating blowout preventer, drilling head and stripper: Engineered to keep drilling under control, especially where high-pressure gas is encountered. Positive pack-off is accomplished by a sure-grip rubber which holds firmly any type kelly, tubing, or drill pipe. The core which holds the rubber revolves with the drill stem on roller bearings. There are three uses: (1) Drilling in under pressure; (2) blowout prevention, and (3) reverse circulation, either in cleaning out or drilling in.

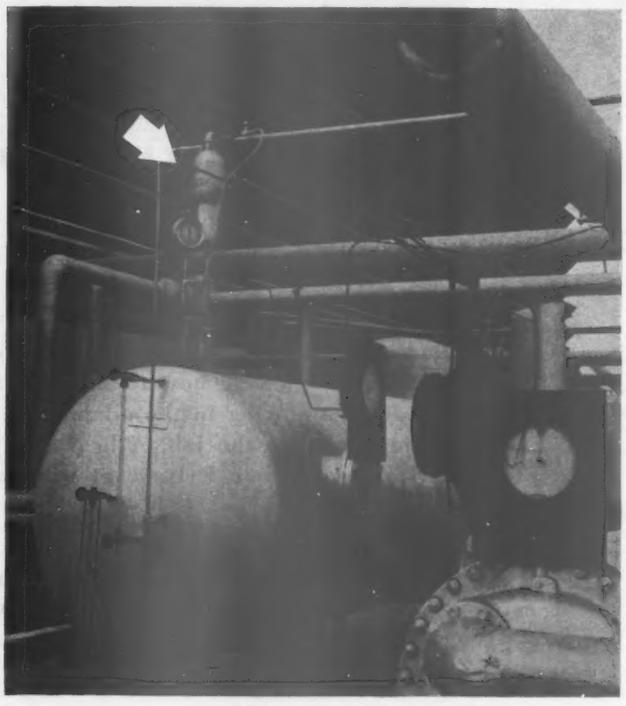
Drillable aluminum packer: Producers have demanded a packer to meet certain risky packoff problems. To fill this requirement, the aluminum Type GT pack-

Refiner Finds New Way to Purify BUTANE

Used in Refrigeration System



. Installs New ARMSTRONG PURGER!



REFINERS who produce butane, propane, isobutane, etc. and/or use them as refrigerant gas in refrigerating equipment will be interested in the installation pictured above in a Texas refinery. This company uses butane in their refrigeration system for cooling natural gasoline and mineral seal oil.

Formerly, it was impossible to purify the butane sufficiently to remove traces of propane, ethane and methane. As a result, the high side (condenser) pressure in the refrigerating system always ran about 10 lbs. above the normal condensing point. This increased the power bill about 5%.

Today, that power waste has been eliminated and the butane is virtually PURE — thanks to a new invention "The Armstrong Non-condensible Gas Purger!" This unit has wide applications for purifying condensible gases and for raising the efficiency of refrigerating systems.

Write for interesting new 8 page bulletin — JUST OFF THE PRESS.

ARMSTRONG MACHINE WORKS
868 Maple St.
Three Rivers, Michigan

See Our Exhibit at the INTERNATIONAL PETROLEUM EXPOSITION TULSA MAY. 18-25

A PERSONAL MESSAGE:

Friends:
I will be in the Armstrong Booth No. 94-95, Texas Bldg., during the Tulsa Show. Stop in and see this new Purger.
GEORGE B. ALLAN,
Armstrong Representative

er was developed. In basic design the packer is constructed in the same sturdy manner as the standard Type GT packer, including the control-head feature—the only change is from steel to aluminum. Should a situation arise which would necessitate drilling up the packer, this aluminum material will offer very little resistance to the bit.

Gulf Publishing Co.
Houston, Tex.
181-182-183 Oklahoma Building

Gustin-Bacon Manufacturing Co.
Kansas City, Mo.
194-195 Oklahoma Building
In attendance

A. L. GUSTIN	V. F. HALLIBURTON
A. L. GUSTIN, JR.	J. R. HIGGINS
J. F. STEPHENS	S. M. BLEVENS
J. NEAL SAWYER	M. C. BEAVER
CHAS. WHEATLEY	P. O. CRAIG
C. H. ARMSTRONG	N. A. WILSON
H. M. STONE	TED WIKLUND

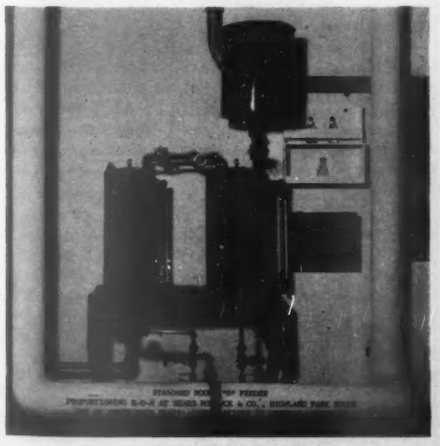
Red-Hed stuffing box

A unique feature will be a photomural background over the entire back wall, showing enlarged photographs of G-B products installed. These products include the well-known Rolagrip coupling, the Red-Hed stuffing box, the Strokontrol and the Dugas fire extinguisher.

The Red-Hed stuffing box is built around an entirely new packing element, the patented meshtite rubber. It packs off with less friction and less wear on the polished rod. It lasts many times longer than conventional block-type rubbers of equal size, maintaining a tight fluid seal during all stages of wear. The Red-Hed's top opening is considered one of the most important improvements made in oil-field equipment in recent years.

D. W. Haering & Co., Inc.
Chicago, Ill.
26 Scientific and Technical Building
In attendance

D. W. HAERING	E. H. SNYDER
C. E. ERB	H. B. GRAVES
H. C. DAGGETT	A. R. DOOLEY
H. B. CARLSON	



Various organic chemicals developed by the company's research for scale and corrosion control will be exhibited in conjunction with corrosion specimens

and tests. Included will be the recently introduced Quachrom Glucosate which has reduced the cost of corrosion control a decimal point, and Tetra Phospho Glucosate, said to be the most efficient colloidal scale-control medium available with properties of interest in connection with flooding operations and control of drilling muds. Corrosion control in gas phases such as sour gas and steam will be covered as well as the usual control of subaqueous corrosion in waters and brines.

Accurate proportioning by the use of pressure differential devices employing the Haering fluid piston pinciple will be displayed by an operating H-O-H Model "B" feeder. These units are the acme of simplicity and accuracy, cannot clog or corrode and are easily installed. Proportionate sampling as well as proportionate introduction is easily and automatically controlled with these units.

Over 100 items of interest in scale, corrosion, algae control and proportioning will be on display.

Hake Tool Co.

Houston, Tex.

79 Scientific and Technical Building

In attendance

H. W. HAKE, Houston, Tex.
P. D. LONG, Shreveport, La.
W. C. FATJO, Lafayette, La.
HUGH ROBINSON, Blackwell, Okla.
STANLEY ATKINSON, Compton, Calif.

The company is Mid-Continent distributor for MacClatchie Manufacturing Co. and for Globe Oil Tools Co. products. The exhibit will be confined to Mac-

MacClatchie weight indicator mounted on a rig

Clatchie Manufacturing Co. products, featuring its new weight indicator with new and improved take-offs, and will include MacClatchie liner, piston, pump valves and seats, plug valves and underreaming equipment.

Halliburton Oil Well Cementing Co.

Duncan, Okla.

Block K

In attendance

C. P. PARSONS and all of the various key men from time to time during the show

Electrically: Featuring the company's electrical logging instrument, which it calls the "Jeep," which includes five curves representing conditions in a well, four of them being electrical and one thermal; also the new Echo-meter device for determining the fluid level in wells.

Chemically: Featuring some new acids and "Calseal," a new gypsum cement which is revolutionizing certain cementing practices.

Mechanically: Exhibiting the company's newest cementing equipment, which includes the new steel cementing pumps designed and manufactured in its own plant; also the Halliburton-Yowell removable cementer, which is playing a new and very important part in squeeze cementing.

Hanlon-Waters, Inc.

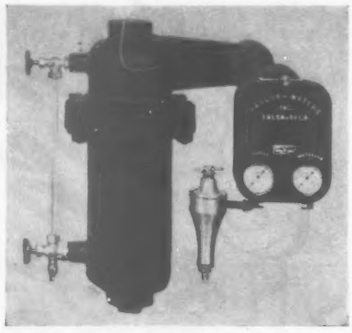
Tulsa, Okla.

128 Texas Building

In attendance

C. C. HERNDON, general manager
L. J. GRIFFY

The company announces its new Type 46 level controller which will be exhibited. It is especially designed for control of light gravity liquids and for high



working pressures since there is no stuffing box incorporated in its construction. It is also applicable for specific-gravity controllers, where the service does not require corrections for temperature variation. In its present form a standard unit is adjustable in the field for level control of interface between any two liquids, or for level control of all liquids from the heaviest to the lightest.

In construction the unit is an elongated float chamber with float, torsion-tube assembly and pressure-compensated pilot. The tubular-steel float is at all times in static balance with the torque of the torsion-tube assembly. A variation of liquid level changes the torque in the tube by virtue of the buoyance of the submerged portion of the float thereby causing a transmittion of movement to the pilot vane to change the pilot-transmitted pressure. The housings are made in all working pressures and lengths in accordance with the A.P.I.-A.S.M.E. core requirements. Torsion-tube housing extension will dissipate heat, thereby eliminating necessity of using a finned cooling section when used on high-temperature service. Float rods and all parts of the torsion-tube assembly are of 18-8 stainless steel.

The high-capacity pilot mechanism is fully adjustable as to direction of action and throttling range. All pilots are equipped with indicating gages on supply pressure and diaphragm pressure as well as operating medium strainer regulators as standard equipment. Mercury-tube switches may be applied to the installation for high or low-level alarms. Liquid-level sight gages can be furnished when desired.

Harley Sales Company

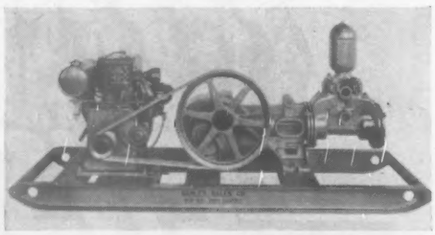
Tulsa, Okla.

Block 3

In attendance

HAROLD TODD — HARRY CRONK
PHIL NORTON, JR. — DON THOM
HARLEY B. NEAL — ROY O. NEAL
GEO. E. KLUPPEL — GERALD SCHMITT

The company carries in its Tulsa and Houston stock a large quantity of Wisconsin air-cooled engines of all sizes, together with fabricated units where Wisconsin engines are connected to many kinds of pumps, com-



pressors, generators, etc., used in oil fields, gasoline plants, refineries, bulk stations, and pipe-line operations.

The various units are fabricated in their own shops. The units are built to eliminate sharp corners and thus personal accidents in handling; too, they are drilled in suitable locations so that they can be set on proper foundations if desired. These substantial and attractive fabrications place Harley Sales Co. among the leading manufacturers in this line of endeavor.

Machinery connected to various-model Wisconsin air-cooled engines on display are as follows:

15-kw. E. M. generator direct connected to AP-4S.

Model 2-A Roper rotary pump to Model AK engine.

4 by 5 Goulds reciprocating pump to Model AH engine.

Curtis air compressor mounted on tank with Model AB engine.

2-kw. electric lighting plant to Model AF engine.

National Transit rotary pump to AC-4S engine.

Happy Belting Co.

Tulsa, Okla.

Block 8, north of Oklahoma Building

In attendance

PAUL E. MAHAFFEY — A. M. BUTCHER
C. A. CHILDERS, JR. — L. E. FERGUSON
LEO C. KING — C. S. KITCH
BEN E. SHELTON — J. R. MEEK
ROY C. LINDLEY

Exhibiting pumpers on display and in operation. Two pumper chain-reduction transmission cases only and four complete pumpers, ranging from 7½ hp. to 20 hp. or from 37,000 to 117,000-in.-lb. torque. Young Happy full-flow engine-jacket water coolers on display and in operation. Radiator-type coolers, ranging from No. 24 to No. 84 sizes with cutout sections showing the "full-flow" feature. Literature available with detailed construction and numerous pictures of installations of this equipment.

Quick-change sheaves, V-belt sheaves, as well as the regular line of the company's merchandise, such as belting, cups, rings, belt dressing, transmission equipment, clutches and pulleys.

Hart Industrial Supply Co.

Oklahoma City, Okla., Pampa and Borger, Tex.

69-70 Kansas Building

In attendance

OTTO HART, president
V. H. SCHENCK, secretary-treasurer
J. M. KRISMAN, sales engineer
M. A. WINTER, sales engineer
R. D. THOMAS, president Arcos Corp., Philadelphia, Pa., and representatives from Westinghouse Electric & Manufacturing Co. and Metal & Thermit Corp.

The company is exclusive distributor in Oklahoma and North Texas, including the Panhandle of Texas, for the three lines exhibited:

Westinghouse Flexarc welders, manufactured by Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa.

Murex electrodes, manufactured by Metal & Thermit Corp., New York.

Arcos stainless electrodes, manufactured by Arcos Corp., Philadelphia, Pa.

Exhibit will consist of a number of the latest Westinghouse developments of electric welding machines, both gas-engine and motor generator sets; also full line of electrodes manufactured by Metal & Thermit Corp.; and stainless electrodes manufactured by Arcos Corp. A welding booth will be in the exhibit.

The company, recently appointed to represent the Arcos line of stainless electrodes, feels this is an outstanding line and due to the demand for higher-octane gasoline the manufacturer has to furnish better equipment, necessitating use of special alloy rods in welding the new steels used in the manufacture of the higher-octane gasoline and other developments in the oil industry.

Heil Co.

Milwaukee, Wis.

Block 102

In attendance

JOSEPH F. HEIL, executive vice president
T. A. BURRESS, sales manager, tank division
HOWARD MANN, Southwest district manager
H. F. PUGH, advertising manager
F. G. THWAITS, tank engineer
T. A. MILLER, sales manager, road machinery division

Equipment that answers many of the construction

and delivery problems of petroleum producers and marketers will be featured. It will include a streamline transportation tank that meets every hauling requirement of the marketer.

Other equipment will be a hydraulic dump unit, a Dig-N-Carry cable scoop, and a hydraulic trailbuilder

which has a specially designed supporting frame and is equipped with a blade that can be angled to either side or used in buildozing position. Hydraulic power gives positive control to the blade.

The Dig-N-Carry cable scoop is an efficient unit on dirt-moving projects in any type of soil. It digs, carries, spreads, and grades, and can be used with all makes of crawler tractors.

Hercules Motor Co.

Canton, Ohio

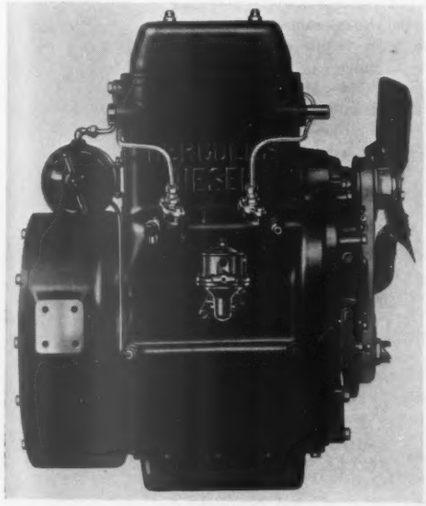
76-77-78-133-134-135 Oklahoma Building

In attendance

A. B. WEHLING, manager of Houston and Kilgore, Tex., sales and service branches
CHARLES BALOUGH — R. J. SCOTT
JOHN C. KEPLINGER — D. W. LATTA
CHARLES P. WEEKES — E. A. HASKINS
FRED C. GOLDSMITH — GEO. W. LaSALLE

A very complete line of the company's engines and power units will be shown. Ranging from 4 to 200 hp., the line includes both gasoline and diesel engines and power units in two-cylinder, four-cylinder, and six-cylinder high-speed, heavy-duty models.

A feature will be the new DIX series of two-cylinder, high-speed, heavy-duty diesel engines and power units, primarily built for hand starting. The fuel pump and governor were incorporated in the design of the cyl-



inder block itself. The easily replaceable fuel plungers are driven by the engine camshaft. An entirely enclosed but easily accessible governor is mounted on the camshaft gear. There are only three gears in the front of the engine, these being crankshaft, camshaft, and lubricating-oil driving gear. The timing-gear housing, the tappet and the rocker arm compartment are airtight, sealed from the crankcase.

A new two-cylinder gasoline engine will also be shown, Model BXB, 2⅞ by 3 in. The torque of Model BXB is 28 lb. ft. at 1,200 r.p.m. The crankshaft in Model BXB is counterbalanced to compensate for the full amount of the rotating mass, plus 45 per cent of the reciprocating mass, making for exceptionally smooth two-cylinder operation.

The exhibit will also include the "Power Package" replacement engine for 1940 and earlier model Ford trucks, as well as the new DFX series six-cylinder diesel engines available in 5 by 6-in. 5¼ by 6-in., and 5½ by 6-in. bore and stroke. Series DFX diesels are furnished in horizontal, on-the-angle and vertical models. Among other interesting features is the use of an oil tank built directly into the oil pan, affording an exceptionally large oil capacity.

Hills-McCanna Co.

48-49 Scientific and Technical Building

Chicago, Ill.

In attendance

F. R. GRASSLE, Chicago office
R. McFARLAND, Chicago office
A. P. WRIGHT, Houston representative
EDWARD SOPH, Tulsa representative
BINGHAM SOPH, Tulsa representative
H. P. MacGREGOR, St. Louis representative

Exhibit will include Saunders' patent diaphragm-type valves, force-feed lubricators, chemical proportioning pumps, thermometer and pyrometer wells, still plugs, various nonferrous alloys produced in their foundry, and Dowmetal, a magnesium alloy of remarkable lightness and strength.

Working assemblies of chemical proportioning pumps and lubricators—recently designed and including many refinements and improvements — will be displayed. These units will be so arranged as to permit observation of actual operation.

One of the most interesting features will be a phantom cross-section of the Saunders' patent valve, the unusual effect of which is obtained by means of a new type of ultraviolet-ray lamp. This type of lighting has never before been used for commercial exhibition purposes.

Hilliard Corporation

Elmira, N. Y.

77 Kansas Building

In attendance

E. A. MOOERS, general manager
JOHN M. SCHUCKERS, chief engineer
ALBERT S. ALLEN, assistant sales manager, and territorial representatives.

Exhibiting various types of clutches including fric-

The RIGHT Clutch Facings Pay BIG Dividends

If you want positive performance and long wear life that keeps equipment operating without costly shut-downs, *you want GATKE Clutch Facings.*

For more than a quarter century GATKE has been developing clutch facings for tough jobs—building mammoth discs weighing a half ton each for the largest mine hoists — making cone frictions for the toughest power shovel service—developing clutch facings for troublesome oil field jobs.

To make sure you get the right clutch facing, send data on your requirements for the GATKE Recommendation.

Visit the GATKE Exhibit—Booths 23-24-25 International Petroleum Exposition.

GATKE Gear Toothed Clutch Facings with integrally moulded teeth.

Above—GATKE Moulded Clutch Blocks

Below—GATKE Clutch Facings are made to accurate dimensions in all shapes and sizes.

GATKE CORPORATION

228 North La Salle Street — CHICAGO, ILLINOIS

SAMPLE OF SURWEL FILM

"You can't get a FALSE RECORD with a Sperry-Sun instrument"

SURWEL SELF-CHECKING MULTISHOT
SYFO SELF-CHECKING CLINOGRAPH
H-K SELF-CHECK-ING SINGLE SHOT
K-K WHIPSTOCK AND REMOVAL SUB
MAGNETIC DEFLECTING TOOL ORIENTATION
POLAR CORE ORIENTATION SAMPLE CORE

They are all self-checking. That's the most important requirement for any well surveying instrument. Sperry-Sun instruments will produce a record only after the recording devices in the instrument have completely come to rest at the depth at which the information is wanted.

An instrument which can produce an easily readable record without any assurance that its recording device is at rest, cannot guarantee accurate results, thus defeating the purpose of the survey, resulting in loss of time and money for the driller.

With the Sperry-Sun instruments, you are always sure of a true and accurate record. Get the advantage of this self-checking feature. It's standard throughout the Sperry-Sun line, from the SURWEL Gyroscopic Multiple Shot Clinograph to the SYFO, H-K Single Shot, and H-K Inclinometer.

SPERRY-SUN WELL SURVEYING CO., 1608 WALNUT ST., PHILA., PA.

HOUSTON, TEX. • CORPUS CHRISTI, TEX. • SEAGRAVES, TEX. • LONG BEACH, CALIF.
BAKERSFIELD, CALIF. • LAFAYETTE, LA. • TULSA, OKLA.

STREAMLINED FOR SAFETY

You entirely eliminate danger from broken glass with the DURAGAUGE. Instead of the conventional glass-and-ring, the new DURAGAUGE cover is made of non-breakable, crystal clear plastic which threads on the non-corrosive phenol case. It is beautiful—and tough, having a tensile strength of about 5000 pounds. DURAGAUGES give greater value in better service, durability and accuracy. And now we have added the feature of safety with the new plastic gauge cover.

For sour gas service, the DURAGAUGE is made with a stainless steel Bourdon spring of KA_2SMO with welded connections at the socket and tip. The only satisfactory gauge for corrosive sour gas.

You pay nothing extra for these DURAGAUGE features.

Branch stocks in Tulsa and Los Angeles. Other branches in Dallas, Houston, New Orleans.

ASHCROFT GAUGES MANNING, MAXWELL & MOORE, INC. BRIDGEPORT CONNECTICUT

tion, over-running, and single revolution. A Hilco oil reclaimer will be in operation. The Hilco oil reclaimer, illustrated, provides an automatic means for completely restoring used lubricating oil to its original specifications. It is continuous in operation and all electric. Attention is required only once a day. The quality of oil produced does not depend upon the judgment of an operator. The process consists of filtration through a bed of very efficient adsorbent clay to remove all solid matter such as sludge, carbon,

Hilco oil reclaimer

abrasives and dust. Acidity and color are also favorably restored. Moisture and fuel dilution are removed by a process of evaporation under vacuum in a vaporizing chamber that is electrically heated and thermostatically controlled.

The oil reclaimer is being used extensively direct-connected in the lubricating systems of stationary and marine diesel engines, and when this is done, it is said, the oil in the engine itself is kept absolutely clean at all times, resulting in improved operating conditions and decreased maintenance costs. It is described as particularly suited to installation in large electric-generating plants or in connection with diesel engines in pipe-line service. It may also be profitably used for the reclamation of oil drained from trucks, tractors, and other mobile equipment.

Hinderliter Tool Co.

Tulsa, Okla.

Hinderliter Building

In attendance

C. M. ANDERSON, Longview, Tex.
A. M. CAMPBELL, Tulsa
RAY CASH, Clay City, Ill.
L. W. CHADDERDON, Oklahoma City, Okla.
M. J. (BUD) CONLEY, Shreveport, La.
T. R. ELLIOTT, Clay City, Ill.
HERMAN B. HENDERSHOT, Tulsa
CHARLES A. HINDERLITER, Dallas, Tex.
DON R. HINDERLITER, Tulsa
C. M. LAUDERMILK, Shreveport, La.
R. H. McKAY, Tulsa
L. L. McCOLM, Pampa, Tex.
J. J. MIDDAUGH, Houston, Tex.
JOHN H. MORAN, Houston, Tex.
STEELE S. MEELY, Wichita, Kans.
JOHN J. OLIVIER, Hobbs, N. M.
W. P. POUND, Oklahoma City, Okla.
J. G. RUSSELL, Seminole, Okla.
J. O. SIMPSON, Wichita Falls, Tex.
W. B. STARMER, Tulsa
A. L. STEWART, Tulsa
DON H. SWINDLER, Houston, Tex.
M. A. WESTON, Clay City, Ill.
F. J. WILBANKS, Seminole, Okla.
C. C. WRIGHT, Oklahoma City, Okla.
BLAINE HENDERSHOT, Tulsa
M. B. THOMPSON, Odessa, Tex.

Classifications of products displayed:

Dual valve well-pressure control.

Rotary drilling-in and coring head.

Five Type HWF tubing heads equipped with either tubing hanger or tubing slips.

Slip-type braden head.

Tubing hanger.

XF type flanged tubing head equipped with tubing hanger or tubing slips.

Automatic tubing wedges.

4-in-1 low-pressure tubing head with tubing seal.

High and low-pressure christmas-tree hookups.

Coring heads designed for flanged welding and slips—no rubber packing necessary.

Extensive array of tool joints, including the Hi-Pack-Off type as well as the undercut structure.

Hobart Bros.
Troy, Ohio

129-130-131 Kansas Building

Homelite Corp.
Port Chester, N. Y.

Block V

In attendance

NELSON THOMPSON, sales manager

Exhibiting portable gasoline-engine-driven pumps and generators under working conditions on pipe-line and exploration work. The pumps will be put to vacuum and volume tests—showing their 28 ft. suction lift and unusually large capacity. Other demonstrations will show how these pumps maintain their prime, even when handling seepage water with large quantities of air, as well as their ability to pump large amounts of solids without clogging. The generators will be shown supplying current for typical oil-industry jobs in the field—floodlights for night emergency operation, portable radio for field communication, battery charging, and operation of portable electric tools.

Houston Oil Field Material Co.
Houston, Tex.

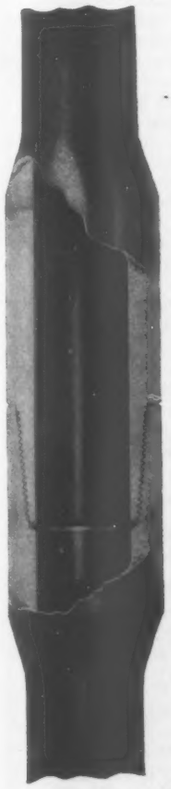
46 California Building

Hughes Tool Co.
Houston, Tex.

211-215-236-240 Oklahoma Building

In attendance

HOWE WALKER, Tulsa



Howe Walker, Tulsa, will be in charge of the exhibit with an adequate staff of attendants to explain and demonstrate all features of Hughes products. These men will include representatives of both the sales and engineering departments.

Practically all products of Hughes Tool Co. will be on "parade" showing recent developments in equipment of their manufacture, sectioned and illustrated that interior construction and workmanship may be viewed to best advantage.

In addition to rock bits, core bits, tool joints, valves and fittings, Hughes will feature its "unitized drill stem" which has already been introduced to the drilling industry as a major development in tool-joint construction. By this "flash weld" method of attaching tool joints to drill pipe, Hughes Tool Co. has entirely eliminated pipe threads which, heretofore, have been the "weak point" of the drill stem.

Hughes "flash weld" tool joints make possible "unitized" drill stem

The Charles N. Hough Mfg. Company
Franklin, Pa.

123 and 124 Texas Building

In attendance

CHARLES O. SHUMAKER, Wichita, Kans.
HARRY A. ADAMS, Shreveport, La.
HARRY P. WIRTH, Houston, Tex.
FRANK L. SCOTT, Tulsa
L. L. REIB, Tulsa
CHARLES N. HOUGH, Franklin, Pa.
O. J. THOMPSON, Franklin, Pa.
NEALE (DON) DONOVAN, Big Spring, Tex.

Display will include specialized balls and seats, which are sold under the trade names, "Steelex," "Bronzex," "Repelex," "Kamonex," "Combinex," and "Resistex." Hough seamless steel working barrels, and all types of working-barrel valves. Sealex and Flex-Seal packing rings. Insert pumps, which include Huf-M-T-L, Huf-Duo, Huf-Supersize, Huf-Stripper, and Huf-Lewis. In addition, there will be displayed Williams lower valve pullers, polished-rod liners, polished rods, sucker-rod couplings, and substitutes.

New items on display for the first time, will be 2 by 1 1/16 in. M-T-L metal-to-metal insert pumps, and Nu-Lewis, made in sizes 2 by 1 1/2 in., 2 by 1 in., and 2 by 1 1/4 in.

Hyatt Bearings Division
(General Motors Sales Corp.)
Harrison, N. J.

57-58 Texas Building

In attendance

C. L. NEWBY, division manager, Chicago
F. H. WEBSTER, sales engineer, Chicago
J. L. HAYNES, division engineer, Chicago
J. M. KELLY, division manager, Pittsburgh, Pa.
L. L. HILL, Pittsburgh, Pa.
A. J. SWISLER, sales engineer in Southwest territory
H. K. PORTER, general sales manager, Harrison, N. J.
H. M. CARROLL, advertising manager, Harrison, N. J.

On display will be the various types of the company's roller bearings used in draw works, pumping units, rotaries, blocks, pumps, engines, etc.

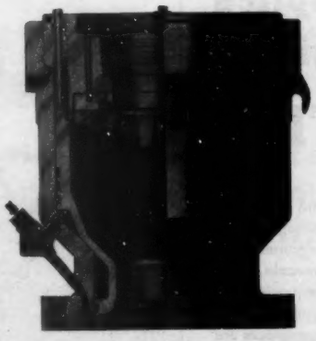
Hydril Company
Los Angeles, Calif.

20-21-22 California Building

In attendance

EARL M. DANIELS, general sales manager
B. L. STONE, general manager
R. L. ENGSTROM, chief engineer
J. B. MAGOFFIN — CLAUDE BANTA
CHET W. WHALEY — ALLAN S. HICKS
W. O. MOORE — GEORGE B. FLEMMING
C. E. McCARTHY — J. GORDON BIRD

Blowout-prevention equipment, including the company's Type "R" blowout preventer, Type "C-P" blowout preventer, and a full line of casing, tubing, and



Hydril Type "R" blowout preventer in cross-section

drill-pipe plugs which are used to close off the passage through the pipe under high-pressure conditions, will be featured. Cutaway samples, showing construction of the various types of drill-pipe joints, casing joints, and tubing joints manufactured by the company, will also be shown.

A complete No. 4 size Type "R" blowout preventer will be on display in conjunction with pictorial matter, which will show the action of the packing rubber when closing around the drill-string members, of all shapes and sizes, under pressure.

Illinois Engineering Company
Chicago, Ill.

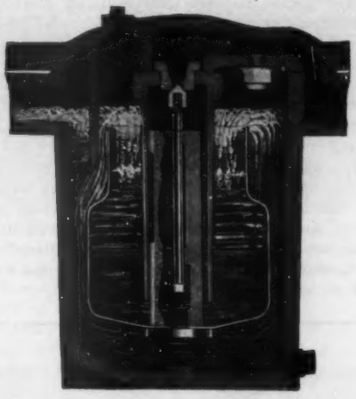
40 Kansas Building

In attendance

J. L. EHRETSMAN, Chicago
THOMAS G. WATKINS, Chicago
AL NATKIN, Natkin & Co., Tulsa

Exhibiting two items of its manufacture under steam-operating conditions, namely a glass model high-pressure steam trap, illustrating the operation of the interior mechanism.

Also standard Model 6G float and thermostatic trap



for heating-system service, connected to a unit heater, under approximately heating-system conditions of steam pressure and temperature.

Independent Pneumatic Tool Co.
Chicago, Ill.

56 Scientific and Technical Building

In attendance

W. D. MADDEN — N. C. HURLEY, JR.

Showing a complete line of portable electric drills, screwdrivers, nut setters, grinders, sanders, nibblers, saws and hammers which it manufactures for construction and maintenance work.

Featured will be the recently announced Thor-Nado, an electric hammer featuring the radically new "slingshot drive" that delivers a blow described as unparalleled for power in a tool of its size and capacity. Although it measures only 13 1/2 in. long and weighs but 14 lb., this powerful new hammer is adapted to a wide variety of heavy-duty applications, including star drilling, channeling, chipping, cleaning, scaling, cutting, gouging, beading, caulking and seaming. Its capacity in concrete, limestone and brick is 1 in.

Industrial Engineering Co.
Wilmington, Calif.

203-204-247-248 Oklahoma Building

In attendance

S. D. BECHTEL — JOHN A. McCONE
H. C. PRICE — C. A. BANKS
W. W. COLLEY — J. H. CONROY
C. B. SNEAD — CHARLES A. FLANNERY

Will exhibit sections of steel pipe coated with Somastic, a product manufactured and applied by this

Mobile plant applying Somastic coating "over the trench" on Texas operating line

company exclusively for exterior protection of pipe lines against soil corrosion. This company announces that in addition to the central plant at the home office,

it now has several portable plants which may be set up adjacent to the pipe-line site or is capable of coating operating lines over the trench, as shown in the picture.

Colored motion pictures will be shown illustrating the operations of its various types of plants: central, railhead, small diameter, and over-trench; as well as field operations showing the hauling, stringing, and laying of Somastic-coated lines in various parts of the country.

This company will also exhibit a complete line of industrial Fiberglas insulation, manufactured by the Owens-Corning Fiberglas Corp., and distributed by Industrial Engineering Co. throughout the 11 western states. This display will consist of pipe coverings, bats, blankets, boards, and many other interesting types suitable for insulating all kinds of hot and cold surfaces. Similar displays at the New York and San Francisco fairs attracted considerable interest.

Industrial Sales & Engineering Co.

Houston, Tex.

6-7-8-9 California Building

In attendance

W. R. DAVIS — J. H. DRAPIER
L. B. HOLT — L. L. PELLET

The company is the district sales representative for several companies, exhibiting in different spaces. In Booths 6, 7, 8, and 9 of the California Building will be D. O. James Manufacturing Co., Kropp Forge Co., Laminated Shim Co., and Chicago Rawhide Manufacturing Co. In Booths 37 and 38, California Building, will be the Union Chain & Manufacturing Co.

D. O. James Mfg. Co.

In attendance

L. H. SCHRADE — JOHN HOLY
J. J. DOWLING — H. O. JAMES

Laminated Shim Co., Inc.

In attendance

OWEN C. JONES

Union Chain & Mfg. Co.

In attendance

E. F. EMMONS — PERRY CATRON
E. J. BUDER — NORMAN REIS
PARNGY McCLUNE
JOHN H. CASTLEBERRY

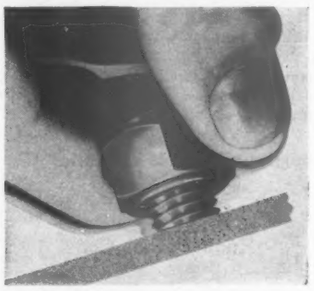
Kropp Forge Co.

ROY A. KROPP — CHARLES F. JOHNSON
ARTHUR HELLSTROM
J. HERBERT LUND
LOU W. KREICKER

Chicago Rawhide Manufacturing Co.

MR. NORTHUP — MR. VEDOVELL

The company's exhibits will include, among other products, a Laminated Shim Co. item of unusual interest. Not only will the "packaged" shim and shim-stock line be adequately represented, but the company takes this occasion to introduce to the Southwest a new product—the An-Cor-Lox lock nut which is of



particular interest to builders and users of petroleum equipment. This self-locking lock nut, a modern development, is a self-contained, all-metallic lock nut which is said to set up entirely new standards in locking security, convenience in installation, and economy. Among other features it locks itself to the bolt instead of to the work; never mars either bolt threads or surface of the work; and maintains its locking efficiency under all heat conditions and vibration. This lock nut requires no special length of bolt (it works perfectly even on short bolts), and can be safely reused—repeatedly. Its various sizes will be shown and demonstrated.

A quantity of the company's unique shim-application charts will be available for distribution. A full range of standard-cut shims — both "Laminum" and plain—together with ingenious shim stock storage and dispensing devices, will be displayed.

Ingersoll-Rand Co.

Phillipsburg, N. J.

Block J

In attendance

F. J. WETZEL, Tulsa
W. M. GEBO, Tulsa
W. H. LEE, Dallas
GILES BRAYDEN, Dallas
HARRY PEERS, Dallas
ROY HENRY, Dallas
P. C. MINISTER, Los Angeles
H. M. FISKE, Los Angeles
F. W. SULTAN, Houston
K. P. HURLEY, Houston
E. C. HARPER, Houston
J. J. JANZEN, New York (main office)
L. H. GEYER, New York (main office)

This company will exhibit a number of pumps for oil refineries and pipe-line use. Also show one of its latest models of portable compressors for use in construction work, pipe-line work, repairs, etc., and several small air compressors for starting diesel and gas engines. It will have available interesting data and illustrations on its complete line of direct-connected gas-engine-driven oil-field compressors and on its diesel engines and gas engines.

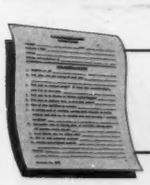
A major feature will be one of its Class RT pumps for pipe-line use. These pumps are built to handle capacities from 150 to over 2,000 g.p.m. against pressures from 200 to over 1,350 lb. per sq. in. They are built with the discharge sizes of 2½, 3, 4, 6 and 8-in.

Class RT pumps were designed specifically for pipe-line work. They may be driven by any type of prime mover as the shaft has been designed strong enough

Hand applied or machine applied —NO-OX-ID Combinations give

FOUR-WAY PROTECTION

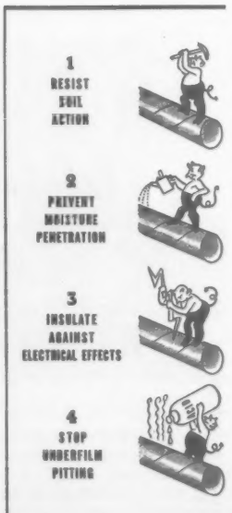
No matter what method of application you prefer—hot or cold, hand or machine —there is a NO-OX-ID combination to suit your individual conditions. No other manufacturer offers such a wide variety of coatings and wrappers, giving you full protection with any application method.



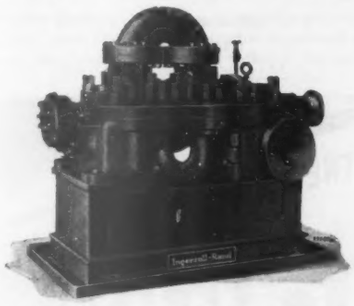
Write for questionnaire to get recommended NO-OX-ID specifications.

NO-OX-ID Coatings and NO-OX-IDized Wrappers are designed specifically for the protection of underground pipe lines. NO-OX-ID coatings contain chemical inhibitors which render passive any pits or corrosion that may be present when the coating is applied. The wrappers are reinforced to resist soil action and thoroughly impregnated with NO-OX-ID to repel moisture. That's why they give lasting pipe line protection.

DEARBORN
CHEMICAL COMPANY
Dept. K, 310 S. Michigan Ave., Chicago



for drive by diesel and gas engines. These pumps are of the single-suction, opposed-impeller design with the horizontally split casing. Half of the impellers have their inlets facing in the opposite direction from the other half. This construction assures longitudinal hydraulic balance and eliminates the need for any type of balancing drum. The impellers are sealed against



An Ingersoll-Rand six-stage pipe-line pump

leakage by means of renewable, double-wearing rings. This construction plus the use of large carefully designed crossover passages from stage to stage assures high efficiency operation.

The rotor is supported by large oil-lubricated ball bearings. One of these bearings is of the duplex, angular-contact type designed to take care of any thrust loads that may be developed. The other is of the double-row, self-aligning type and it is free to move longitudinally in the casing.

Deep stuffing boxes seal the shaft. These stuffing boxes contain a number of rings of packing and can be arranged for grease, water or cold oil lubrication, depending on the liquid to be pumped. The stuffing-box glands are of the two-piece type which can be easily removed from the shaft. Mechanical seals are also available. These pumps are proving themselves efficient and durable in a variety of pipe-line pumping jobs.

International Derrick & Equipment Co.

Columbus, Ohio

Block 3, Drake Drive

In attendance

O. M. HAVEKOTTE, president

C. R. ATHY	J. M. AITKEN
R. R. BLOSS	E. H. EDDLEMAN
J. A. TIDBALL	C. M. POWELL
F. E. SUDER	R. D. EKSTRAND

VAN ROGERS

Many new and interesting features are displayed in a twin-crank pumper equipped with full-circle W-O wheel-type cranks and a needle-roller bearing type rein hanger. One of the highlights is a needle-roller type bearing being actuated in the true oscillating motion of a center iron bearing and having a portion of the bearing housing cut away, revealing the action of the rollers.

Another feature is the new Ideco 85 streamlined reducer. This reducer is mounted on a cast sub-base. This unit also displays a new design of cast prime-mover rail. These rails permit a greater range of adjustment and adapt themselves readily to any type of prime mover.

A new clamp-type upper pitman bearing also is shown. Its clamp-type housing is especially designed for ease in assembling in the field.

The pumper also features a safety guard around the cranks and prime mover. This guard is covered with galvanized-wire mesh, pleasing in appearance.

A modern convenience is provided in the form of a theftproof tool box mounted under the samson post and entirely out of the way. It is of welded construction and is equipped with a hasp and staple for locking.

An Ideco safety cutout switch is mounted on the walking beam. A truly modern note has been struck in the new teardrop design of this switch housing.

International Harvester Co.

Chicago, Ill.

Block 101

In attendance

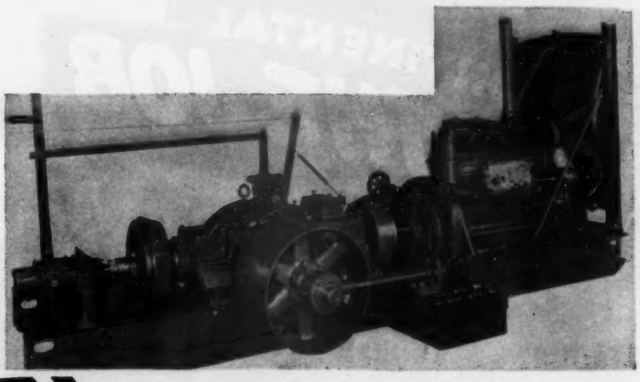
R. W. ELLIOTT, Tulsa manager. He will be assisted by motor-truck and industrial-equipment salesmen from

10 neighboring branches. Various branch managers and sales executives from the Chicago office are also planning to attend.

Included in the display of International tractors will be four sizes of recently announced diesel TracTrac-Tors. The company's new power unit line will also be well represented. Ten power units will be shown—four diesel sizes and six models which operate on gasoline or natural gas. Noteworthy among the eight motor trucks to be shown are three six-wheelers equipped for heavy-duty oil service. One of these, the Model D-216-F, is new.

To house part of this big display, use will be made of the permanent building, built especially for a great-

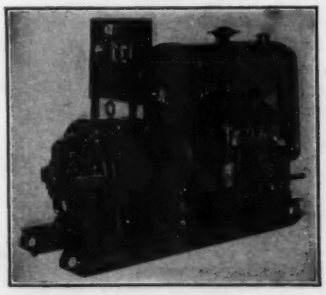
While in Tulsa SEE WHY-» YOUNG ENGINES



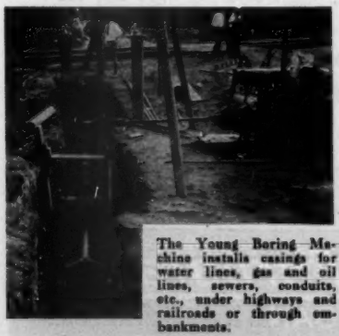
MAKE YOUR DRILLING DOLLARS GO DEEPER

Nothing takes the place of first hand information when you want the low-down on which Drilling Engine will give you more hole per dollar. Get the facts on the time you save in moving and setting up Young Drilling Engines. Check on the higher percentage of productive time that speeds operation through elimination of lost motion in such things as instant reverse without shifting gears. Rugged, economical, gas, gasoline or Diesel motors that stay at their job to lick every emergency.

Be sure of your lights and electric power. Light up your jobs with YOUNG ELECTRIC GENERATING UNITS



The units that are built for oil field service—Sturdy, compact units mounted on rigid steel bases. Your choice of Manual or Automatic Control, powered by gas or Diesel engines, in capacities from 1 KW to 250 KW, either AC or DC.



The Young Boring Machine installs casings for water lines, gas and oil lines, sewers, conduits, etc., under highways and railroads or through embankments.

Speed Pipeline Laying under Roads or Railway Right-of-Way

The Young Road Boring Machine is a rotary drill adapted for boring horizontally. Makes quick work of placing conduit for pipe under roads or through embankment without disturbing the surface. Proved in use on hundreds of jobs.

Write for literature on these machines. See our machines at the Tulsa Show. Outside Space Block "A"., Cor. Mid-Continent and Texas Drives.

YOUNG ENGINE CORP.
CANTON - - - - OHIO

OUTSIDE SPACE BLOCK A
COR. MID-CONTINENT & TEXAS DRIVES

ly enlarged exhibit. North of this building is an adjoining lot which will be used for display of heavier equipment.

The four new modernly styled, red-colored diesel crawler tractors operate with drawbar horsepower ranging from 30 for the TD-6 to more than 70 for the TD-18. As they will be fitted for the oil show, they are the TD-6 TracTracTor equipped with winch, the smallest in the line; the TD-9 and TD-14, next respectively in size and both equipped with pipe booms; and the TD-18, largest of the four diesel models equipped with bullgrader. There also will be an pneumatic-tired wheel tractor on display, equipped with special front-end winch. Each engine of the new line is provided with a distinctive method of starting by which it starts on gasoline and after about a minute or less of operation, shifts to full diesel operation.

The new Model D-216-F to be shown is a six-wheel vehicle of 13,700-lb. carrying capacity (cab, body, equipment and payload) designed as a complete unit. It is particularly well adapted for use in the hard gruelling work that so often prevails in oil-field work. It will be shown equipped with body winch. The other six-wheelers are International Models AR-626-F and D-246-F with respective carrying capacities (cab, body, equipment and payload) of 42,000 lb. and 14,500 lb. In addition to these three six-wheelers, there are five lighter trucks ranging in carrying capacity (cab, body, equipment and payload) from 3,600 lb. (Model D-15 pickup) to 11,000 lb. (Model D-40 with service rigs).

There are 49 basic models ranging in capacity from the light-delivery models to the biggest six-wheeler, the AR-626-F; Powerful truck engines, 161 wheelbases, a variety of rear-axle ratios, and multiple-speed transmissions, especially in the heavy-duty models permit accurate selection of the right truck for numerous hauling tasks in the oil industry.

The exhibit will also include three cutaway motor-truck engines and also a cutaway diesel engine, a new magneto display and also a parts display.

A CONTINENTAL
ON THE JOB

for
STROUBE & STROUBE
at
TALCO, TEXAS

CONTINENTAL MOTORS · AMERICA'S STANDARD

21 RED SEAL ENGINES FOR OIL FIELD SERVICE

Look at these QUALITY FEATURES

1 Quick, push-button starting.
2 Individual porting (an exclusive patented Continental feature) which means smooth, balanced power.
3 Full length of cylinders surrounded by water for efficient cooling with jackets designed to eliminate hot spots.
4 Precision, interchangeable steel backed bearings.
5 Dust and dirt proof crankcase.
6 Cast iron base with extra large oil capacity available for all models.

This Sturdy Continental Red Seal PY-91, with 16.5 H.P. at 1400 RPM assures this operator of constant water supply

Red Seal Power is the right power for oil field service. Whether for spudding, drilling, pumping (from central power plant or individually) or generator service for power and lighting, write in your specifications — "To Be Powered by Continental."

There are 21 sizes of sturdy Red Seal engines to choose from. Just choose the right size for the job you want done and your power worries will be over.

For when you buy Continental Red Seal Power you buy power that is smooth, dependable, and economical. You buy the result of precise manufacturing. You buy the utmost in performance.

Available Sales and Service Facilities

DIESEL SUPPLY COMPANY
316 Thompson Building
TULSA, OKLAHOMA

ORIENTAL TRANSMISSION & PACKING CO.
2615 Commerce Street
DALLAS, TEXAS

NORRIS BROTHERS, INC.
Robinson, Illinois

STANDARD TOOL & MACHINE CO.
Longview, Texas

Continental Motors Corporation
MUSKEGON, MICHIGAN

International Nickel Co., Inc.
New York

64-65-66 Texas Building

In attendance

A. G. ZIMA — H. S. LEWIS
B. B. MORTON — F. R. BAILEY
H. E. SEARLE

Displaying samples of a number of nickel alloys used in the petroleum industry. Specifically, these will probably include a roller bit of nickel-chromium steel, a

tool joint of the same material, a nonmagnetic sub forged from K-monel, several samples of drill pipe of the new low-alloy high-strength nickel-copper steel, numerous flange fittings of nickel cast iron, and samples of Ni-Resist pipe for acid-sludge lines.

W. V. C. Jackson
Tulsa, Okla.

122 Kansas Building

Representing in Oklahoma and Kansas, Arkansas and Texas Panhandle, several manufacturers of equipment, most of which is devoted to the manufacturing departments, refining and natural-gasoline manufacture of oil companies, grouped in the Kansas Building.

J. P. Devine Mfg. Co., Inc., Mount Vernon, Ill.
C. W. REYNOLDS, president
J. E. FOGARTY, general sales manager
Pressure vessels, heat exchangers, etc.

Sivyer Steel Casting Co., Milwaukee, Wis.
RALPH BURKE, manager refinery department
Furnace fittings, return bends, tube supports, etc.

Mixing Equipment Co., Inc., Rochester, N. Y.
FRED H. GORDON, JR., president
E. S. BISSELL, general manager
F. D. MILLER, chief engineer
"Lightnin" propeller-type mixers.

William F. Klemp Co., Chicago, Ill.
A. E. SANGDAHL, president
B. F. RAMSDELL, vice president
Hexteel vessels, linings, Diamond grating and stair treads.

Wheeling Machine Products Co., Wheeling, W. Va.
A. BRIESE, vice president
Pipe and tubing couplings, nipples, etc.

Janney Cylinder Company
Holmesburg, Philadelphia, Pa.

53 Texas Building

In attendance

CHARLES R. SPARE, vice president and sales manager
SELDEN E. DOUGHTY, metallurgical engineer

Exhibiting hot oil pump plungers (patented design) consisting of tough forged steel center, water cooled, covered with Supard chrome steel sleeve, 500 Brinell hardness, and ground to superfine finish. Show marvelous resistance both to corrosion by hot "sour" oil, up to 900°, also to scoring action of packing. Also a brand new type of plunger of one-piece centrifugally cast Supard chrome steel, surface hardened to 500 Brinell.

Gasoline meter liners and various types of pump liners of Supard chrome steel and Super Ni-Resist iron 200 plus Brinell, both resist corrosion remarkably.

Superior finished shaft sleeves for centrifugal pumps of all sizes, all makes, of Ferrodur (hardened alloy iron —500 Brinell), Super Ni-Resist (200-240 Brinell), Supard chrome steel (500 plus Brinell), and Cupro-Nickeldur, the new "wonder" bronze.

Diesel-engine liners, both wet and "dry" types, finish honed in the bores and ground outside, for maximum life in the engine. The company states: "All of our alloys have had wide application in oil refineries throughout the world and hold enviable records for endurance." Literature and metallurgical advice are available at the booth.

Jeffrey Manufacturing Co.

Columbus, Ohio

169-170 Oklahoma Building

In attendance

N. E. SALSICH, vice president in charge of sales
L. E. BRILL, manager of sales, general production division
T. P. BURKE H. F. ADRIAN

In the back of the booth will be shown translights of the company's Devil Dog and Rotor Chief oil-well chains, in addition to a mud screen and further samples of the company's chains.

Jarecki Manufac'uring Co.

Tulsa, Okla.

87-88 Texas Building

The company will be represented by its officers and district managers and salesmen from various store points.

The display will consist of cut-away sections of the company's valves, fittings and oil-field specialties which it manufactures at its Erie, Pa., plant. As one of the world's largest manufacturers of valves and fittings, the company shows a complete line of cast-iron, malleable-iron, semisteel and bronze valves and fittings. Among the specialties shown will be its Erie improved stuffing box, threadless hinged bell nipple, pumping and flowing tee, Jarco roller pull-rod carrier and Berry pattern casing head. Of particular interest will be its nickel bronze gate valve and its new heavy-duty porous bushed roller pull-rod carrier.

Jenkins Bros., Inc.

New York

41 and 259 Oklahoma Building

Jones & Laughlin Steel Corp.

Pittsburgh, Pa.

12-13-14-15-16 Oklahoma Building

In attendance

W. H. WIEWEL J. O'H. ANDERSON
W. K. BREEZE T. W. BELL
F. D. WINSLOW H. E. FISHER
W. R. K. SCOTT W. A. HUBER
SAM TENNANT G. E. TYSON
W. C. JAMIESON OSCAR WATKINS
J. F. MURRAY A. P. HOLLOWAY
H. N. KEENER H. L. SUMMERS
E. C. HOYE A. E. CROCKETT
JOHN PERRY H. L. WHITELAW
P. D. THOMAS GEORGE BOND
R. M. GIBBS

Showing a complete line of its oil-country products, including J & L integral-joint drill pipe, J & L bell and spigot casing, Gilmore wire rope, and featuring display of the new and distinctive Jones & Laughlin Permalined steel pipe.

Permalined steel pipe, a new cement-lined steel pipe for the transmission of highly corrosive fluids, was perfected and marketed in August 1939. Since that time, applications in oil, coal, chemical, and other industries have proven this new product highly satisfactory in the transmission of acids and waste liquids.

The lining, a specially prepared cement mixture, thoroughly tested before application in a pilot ball mill, is applied by a new high-speed mill designed for the purpose by Jones & Laughlin engineers, and has a smooth, even interior coating. The lining is so smooth that it has a lower friction coefficient than the original pipe, yet is strong enough that no special handling in the field is required, except that the pipe can not be deformed. The pipe can be shipped, cut to length, and fitted just as unlined pipe—the lining being able to withstand without chipping any blow on the exterior of the pipe which does not actually dent the pipe. In addition, the lined fittings which are used with this pipe will be displayed.

KEEPING 'EM ROLLING By WESTCOTT

J-M KEARSARGE ROD PACKING: A high-quality, resilient rod packing for long, efficient service against steam and air.

JOE'S SYSTEM... Get the Best Packing ...it costs less in the long run

AFTER the shop is closed . . . and you start paying overtime . . . that's when your real packing costs roll up! If you have any equipment that's tough on packing, do something about it now. Switch to *Johns-Manville* Packings. For the cost of ordinary materials, you get longer service with fewer shutdowns. The complete line contains a rugged, durable material for every requirement. For details, write for the J-M Packing Catalog. Johns-Manville, 22 E. 40th St., New York, N. Y.

JM

JOHNS-MANVILLE PACKINGS & GASKETS

THERE'S A DISTRIBUTOR NEAR YOU

LIKE READING A BILLBOARD

Users of this gauge don't have to walk from every point on the job for a close-up look . . . nor strain their eyes to make out miniature figures . . . nor squint at a jittery dial to get a pressure reading. They read, at a glance, the billboard figures and large scale divisions on a clear, steady dial through a colorless, unbreakable plexiglass face from distances of 30 feet or more. Yes, it's easy to keep a constant record of your mud, water, oil or gas line pressure with the Abercrombie Pressure Gauge. That's why it so quickly won world-wide acceptance.

ABERCROMBIE PUMP COMPANY, GULF BUILDING, HOUSTON, TEXAS

Johns-Manville Co.

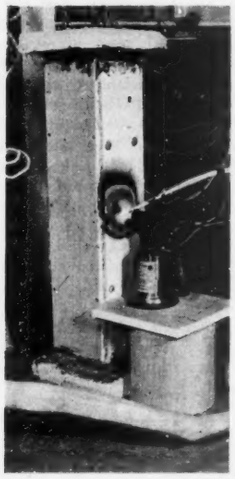
New York

44-45-46-47 Oklahoma Building

In attendance

J. S. CARROLL — T. C. GREENWOOD
F. W. HODSON — E. J. LIGGETT
J. W. ORR

Focal point in the exhibit will be a reproduction of a fire test on Marinite, a new light-weight, fireproof sheet material for the protection of structural steel. This new material, a development of the J-M research laboratories was subjected to a number of such tests before being released. Among the tests employed was that using the standard A.S.T.M. fire curve under which the temperature on the exposed surface of a Marinite-protected steel member was raised to 1,700° F. in 1 hour. During the entire test, temperature on the enclosed steel remained less than 700° F., well below the critical temperature of steel. Marinite is made of asbestos fibre bonded with an inorganic binder.



Spot impinging flame test on Marinite, a new fireproofing material for structural steel. Average flame temperature during the 3-hour test was 1986° F. Maximum temperature on enclosed structural member was 198° F.

Other products featured will be asbestos felts for underground pipe protection, insulations, packings, and Transite asbestos-cement pipe for water and sewage service and salt-water disposal.

The Johnston & Jennings Co.

Oceco Division

Cleveland, Ohio

82-129 Oklahoma Building

In attendance

H. H. FLEMING, Cleveland
WILLIAM H. McGUANGLE, Cleveland
JOHN M. McGREGOR, Tulsa representative
FRED THILENIUS, Tulsa representative
ARTHUR DOOLEY, Beaumont, Tex., representative
ARTHUR RHEW DOOLEY, Beaumont, Tex., representative

The principal items to be displayed will be the latest models of Oceco vent equipment, including flame arrestors and conservation vent valves as well as other items of tank equipment and refinery specialties, including gage hatches, manheads, swing-line equipment, automatic tank gages, still safety valves, receiving-house look boxes, etc.

4-in. Oceco Type B vent unit

Among the new items on display will be Oceco "Lo-Temp-Valve-Lift," an automatic device, which makes it impossible for vent valves to freeze tight under the severest condition; a new water drawoff valve of unique design for refinery and marketing tanks, designed to permit renewal of the valve disk when necessary without opening the tank; and a new 2-in. vent valve with gage opening for marketing-tank service.

S. M. Jones Co.

Toledo, Ohio

18-19 Oklahoma Building

In attendance

P. C. JONES, president, Toledo
D. R. DALE, chief engineer, Toledo
H. K. BROWNING, sales manager, Tulsa
L. J. PUNDT, division manager, Dallas
D. O. JOHNSON, manager, field engineering department, Tulsa

Oil recovery, both with and without sucker rods, will be represented. Included in this display will be an actual Jones-Staggs intermitter which has been recently added to the company's line of oil-recovery products. The simplicity of design and operation of this device is one of its important features.

Jones-Staggs intermitter

Simple, positive control is accomplished with the surface equipment (illustrated) which is all carried on a lightweight 4-ft. jack.

The intermitter valve (patented), which is the poppet type, assures long service and low gas-oil ratios, being operated by the surface equipment. The valve, not in the flow stream, is simple, sturdy, and positive with gas always on both sides. It is operated by lifting and lowering of weight bar—gravity does the work. By the use of a simple valve-extension pipe (patented), gas is introduced at any desired place below the packer—even just "off bottom."

Joyce-Cridland Co.

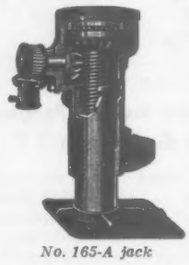
Dayton, Ohio

49-50 Texas Building

In attendance

HUSTON BROWN, vice president
H. B. BURLOW, district manager

Exhibiting a complete line of lifting jacks, hydraulic jacks, and screw jacks, particularly designed and adapted for oil-field service. The mechanical types of Joyce jacks to be featured will be the No. 78 15-ton emergency jack for trucks and setting boilers—No. 2028 20-ton rig builders' jack—the 25, 35, and 50-ton ball-bearing geared-screw jacks for skidding derricks and unloading machinery, and the 75 and 100-ton self-lowering jacks for pulling casing and handling heavy equipment.



No. 165-A jack

The hydraulic jack line will include the BJ-2 bumper jack for automobiles and trucks—a wide range of small compact light hydraulic jacks, from 1½ to 30 tons capacity, for trucks and general service—several sizes of heavy-duty hydraulic jacks, for skidding rigs and handling machinery, and a complete line of long, low, streamlined Liftmaster garage and curb jacks.

Hydraulic jack: A-type

Of special interest to marketing men will be the new Conservitaire air-power unit, operating with a superauto lift. This is the industry's latest development for lift operation in superservice stations. There will also be a premier of the new auto-sway jacks.

Justrite Manufacturing Co.

Chicago, Ill.

17 Scientific and Technical Building

In attendance

F. O. WHITE

The equipment to be shown includes:

Justrite "Twin-Bulb" approved safety lanterns
Other types of "Twin-Bulb" electric lanterns
Justrite nonexplosive safety cans
Justrite oily waste cans
The new Justrite safety filling cans

Featured is the new Justrite "All-Purpose" safety electric lantern (illustrated). This lantern is approved by the U. S. Bureau of Mines (Approval 1017) and approved and listed by the Underwriters' Laboratories, Inc. It is designed for use in all places where fire risk is great—especially for gas-filled areas and other explosive atmosphere.

To reduce the danger of lantern failure, the lantern has two bulbs always available. If one burns out, throwing the switch restores the light. The lighted bulb is always in the center of the reflector so that the lantern gives light to all sides (through a range of 200°) and, at the same time, a powerful forward beam. This lantern may be set on ground or carried over the arm with the light pointing in any direction desired. Base and handle may be turned completely around lantern body. Lantern is equipped with a globe of fire-polished glass, sealed over the reflector and bulbs. The battery is also sealed in the container by means of wire seals. Both bulbs are held in "kickout" bulb sockets which immediately break the electrical contact to a bulb that becomes broken.

One standard six-volt lantern battery and two No. 27 Mazda bulbs are used. Lantern is 6½ in. wide and 11 in. high, overall. Body of lantern is 21 gage steel, cadmium plated. Reflector is chromium-plated brass. Handle is aluminum tubing.

Keasbey & Mattison Co.

Ambler, Pa.

35-36 Kansas Building

In attendance

W. C. SCOTT, vice president
W. S. ACUFF, JR., general sales manager
H. W. DAVIS, Houston district manager

Display will feature the part the company's insulations, wallboards and sprayed "Limpet" play in the producing, refining, and marketing phases of the oil industry.

Kerotest Manufacturing Co.

Pittsburgh, Pa.

89-90-121-122 Oklahoma Building

In attendance

EDWARD G. MUELLER — C. C. TREES
WALTER G. SWANEY — GENE BEST
HARRY C. POTTS — JOS. A SWATON
J. D. ISAACKS — CLYDE L. ALEXANDER
SHEP F. MIERS

Displaying complete systems for drilling and producing wells. Latest improvements and development in alloy cast-steel valves for drilling, production and refinery, cast and forged-steel fittings and flanges.

In addition to newly developed improvements on all the company's valves, there will also be shown and demonstrated an entirely new development in "Packed" slip-type casing hangers and "Packed" slip-type tubing hangers.

Keuffel & Esser Co.

Hoboken, N. J., and New York

19 and 65 Scientific and Technical Building

In attendance

R. E. TASKER — H. E. BOWMAN
BLAN BELL — P. E. WILCOX

Exhibit will include a complete line of steel tapes for the oil industry, surveying instruments and equipment, drawing instruments and materials, and slide rules.

Feature will be the new "Wyteface "A" steel tapes developed for heavy duty; has raised black metal markings on a crackproof white surface. It is easy to read from any angle, even in dim light, and the new construction, it is said, provides an unusual resistance to abrasion. Will be shown in three models: Dallas "A," for gaging crude, Stevens "A," for pipe inventory and general assignments, and Oil Riggers "A," an improved derrick tape.

Key Company

East St. Louis, Ill.

Hall of Science

In attendance

JIMMY CROWE — MAX MASEL

Among the educational exhibits in the Hall of Science there will be one of particular interest to the refining branch. It will show the evolution and developments of return bends for tubular stills used in the processing of petroleum, and as most of this development was contributed by the late Dr. Frederick E. Key, the task of assembling this exhibit was assigned to the Key Co. A booklet containing a brief history of the developments of return-bend fittings will be available.

William F. Klemp Co., Inc.

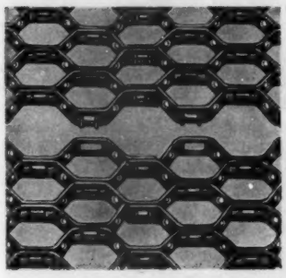
Chicago, Ill.

118 Kansas Building

In attendance

A. E. SANGDAHL, president
W. FORREST OGLE, secretary

Featuring "Hexsteel Surface Armor," a product extensively used in the oil industry as a reinforcement for linings in pressure vessels. The lining is held rigidly in place, preventing sloughing, and materially reducing replacement of costly installations.



Hexsteel has an ingenious method of joining the adjacent pieces together, both endwise and sidewise— producing a continuous mat without separations or seams. The individual mats are sufficiently flexible to take the curvature of the vessel and the slabs are so fabricated they will pass through the manways for assembly in the vessel. The armor is welded directly to the wall and dome of the chamber or spaced away by use of lugs at frequent points to which the armor is bolted or welded to give additional thickness of insulation. Some companies allow the coke to accumulate in the armor as a protector instead of using a prepared lining.

The exhibit will also include Diamond grating and stair treads well known in the oil industry for use in open steel platforms, floors and stairways.

Walter Kidde & Co., Inc.

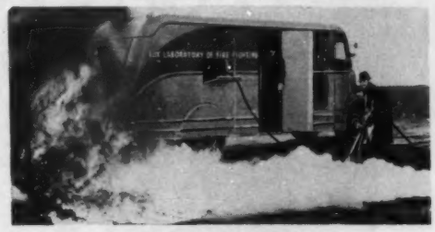
New York

Block E

In attendance

P. W. EBERHARDT — EDWARD WILSON

New wrinkles in scientific fire-fighting, particularly the use of carbon dioxide or "dry ice" gas for smothering flammable liquid fires, will be demonstrated every day. In order to put on these extensive demonstrations, it was necessary for the company's organization to build and equip a 10-ton traveling laboratory, which carries all of the equipment necessary for staging the test fires, and the Tulsa appearance is one of the stops on the laboratory's nation-wide tour. The company's engineers will ignite fires in tanks of gasoline, oil, benzol, and other flammable liquids, extinguishing



Laboratory in action

them by discharging clouds of the artificial snow and gas over the flames. Spill fires, running fires on vertical surfaces, and other tests which simulate conditions found in the oil industry will be staged.

Kobe, Inc.

Oklahoma City, Okla.

Kobe Building, Block 7, Virginia Avenue
East of Continental Supply Building

In attendance

C. J. COBERLY, president, Huntington Park, Calif.
C. M. RADER, Mid-Continent manager, Oklahoma City, Okla.
WENDELL JONES, Petroleum Equipment Co., Los Angeles, Calif.
R. E. RALPH, Tulsa
BASIL WILKERSON, district manager, Salem, Ill.
P. D. CORNELIUS, district manager, Tyler, Tex.
W. C. GILMORE, district manager, Pampa, Tex.
H. W. WILSON, district manager, Odessa, Tex.

HOW MUCH

WEIGHTED MUD

DO YOU HAVE

IN WASTE SUMPS ?

...Waste-mud containing valuable and costly weighting material is *no longer* worthless. It can be continuously conditioned and economically recovered for further use by Merco's process of concentration. Under this method mud-weight as well as the viscosity of the mud can be maintained and controlled during drilling operations, in the circulating mud stream. After the drilling has been terminated, concentrated weighted mud with low viscosity can be recovered for re-use. Actual operating figures show as high as 90% recovery of concentrates at a weight of 120-130 lbs./cu. ft.

CAREFULLY SAVE ALL WEIGHTED WASTE-MUD

...It has Value!

MERCO *Mud* CONCENTRATION

IF YOU HAVE ANY WASTE-MUD ON HAND CONTAINING VALUABLE WEIGHTING MATERIALS WRITE US TODAY

... Or consult with us at Booth 207, Oklahoma Bldg., Tulsa, May 18-25

MERCO CENTRIFUGAL CO., Dept. A-1, 343 Sansome St., San Francisco, Calif.

M. L. WALRAVEN, JR., district manager, Great Bend, Kans., and Calgary, Canada
DON COCKRELL, Maud, Okla.
RAY WILKERSON, Hobbs, N. M.
B. M. MORONEY, Russell, Kans.

The booth is designed to show by actual materials, working models of lucite, cross-sections and pictures the operation and advantages of the company's hydraulic oil-well pumps, torch-cut slotted liners, and Prepack gravel liners. Among other displays the following will be featured:

Prepack gravel liner

A standard insert hydraulic oil-well pump with valves and outer tubes made of transparent lucite. This full-sized pump will be in actual operation, handling various colored fluids so that the action of all parts and the flow of all fluids may clearly be observed.

A full sized "free" hydraulic pump. This unique pump may be installed at the bottom of the well by placing pump in a lubricator at tubing head and forcing it to bottom of the well by pumping oil on top of pump. When service is necessary, the pump may be removed from a well of any depth by "reversing" oil circulation and pumping the pump out of the well. In this manner, after the tubing strings have once been installed no further pulling of tubings will be necessary to remove or replace bottom-hole pumps. This pump will be operated in a lucite outer tube.

Various size pumps from 1¼-in. to 6-in. o.d. with capacities from a few barrels per day to 4,400 bbl. per day. Cross-sections, parts, and pictures of the company's pumps and liners. Sections of torch-cut, high-strength, slotted casing. Samples of prepack gravel liners. Accurate and rapid operating perosimeter.

Koppers Company

American Hammered Piston Ring Division
Baltimore, Md.

Booth 73 Texas Building

In attendance

HARRY NOLAN — MEIGHAN KELLY
J. M. FULLER — BART ALDRIDGE
ED STEAD — E. S. FREEMAN, JR.
JOHN A. WORTHINGTON

Exhibiting the latest developments in piston rings for diesel, steam, and gas engines; pumps and compressors, particularly for oil-field equipment.

Kropp Forge Co.

Chicago, Ill.

Booths 6-7-8-9 California Building

In attendance

ROY A. KROPP, president
J. H. DRAPIER, L. B. HOLT and W. R. DAVIS of Industrial Sales & Engineering Co.

Exhibit includes forgings for casing heads, draw works, valve bodies and fittings for christmas trees, manifolds, spudding, boosters and pipe line; hooks, rings and shafts, tools and other heavy duty and high-pressure forged parts.

Shown for the first time will be a new type welding flange developed by Kropp to speed up line piping work. Also included will be Kropp forged steel companion flanges of various types, welding necks, boiler flanges and spuds.

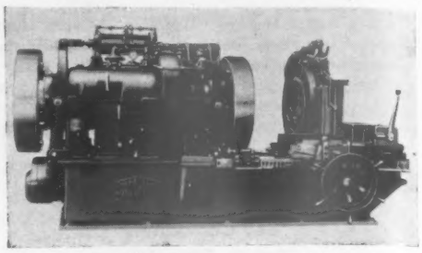
Landis Machine Company

Waynesboro, Pa.

6, 7, and 8 Oklahoma Building

In attendance

G. M. STICKELL, sales manager.
J. R. FUNK, Texas and Oklahoma representative
R. L. MOORE, California representative

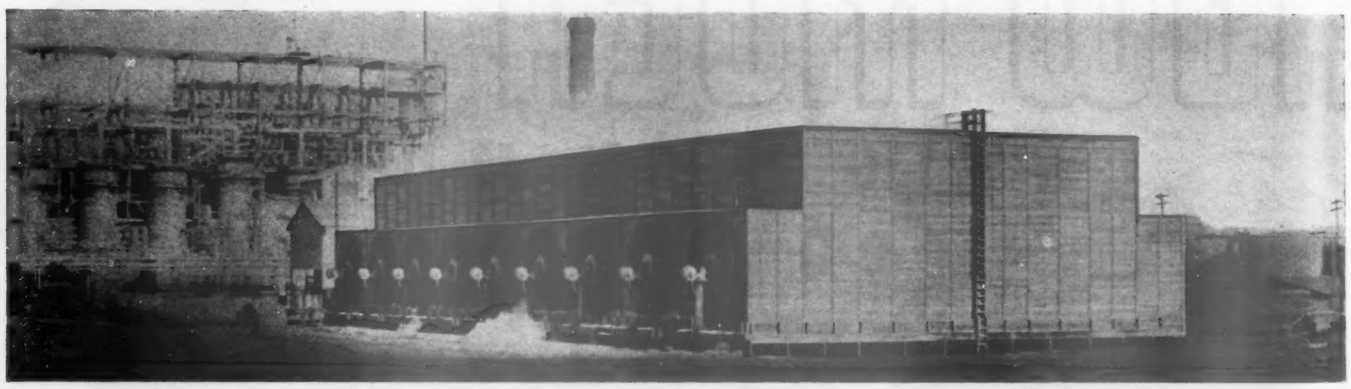


Air-controlled receding-chaser pipe threading and cutting machine

Exhibiting its 13⅜-in. pipe threading and cutting machine with the receding-chaser die head. This machine will be of particular interest to production men and to those engaged in the transportation and refining division.

The machine will be demonstrated on 8⅝-in. seamless steel casing. The ability of this machine to cut threads well within A.P.I. tolerance specifications, is is said, has won for it an unusual reputation. In addition to being used by the manufacturers of oil-well tubular goods, it is also used in the oil fields throughout the world by jobbers and users of casing, tubing, and drill pipe. It provides, the company states, an efficient and an economical means for the cutting of accurate threads on oil-well tubular goods and its use assures a material reduction in operating cost.

It covers a wide diametrical range of sizes from 4½-in. to 13⅜-in. inclusive, and only two sets of chasers are required to cover this entire range as long as the pitch, thread form, and taper remain the same. This feature eliminates the necessity for frequent



18-cell Refinery Cooling Tower

Forced Draft
Low Head

FOSTER WHEELER CORPORATION
165 Broadway
New York, N. Y.

Control of water cooling is essential for maintenance of refinery production on an all year 'round basis. Mechanical draft, low head towers—more compact and involving lower pumping costs than natural draft towers—provide definite regulation of water cooling up to guaranteed capacity.

The importance of maximum output so far outweighs any small difference in operating costs between mechanical and natural draft, that the universal tendency is now toward controlled cooling and elimination of reduced operations because of unfavorable weather.

It is significant that more than 50% of the low head mechanical draft capacity in Foster Wheeler cooling towers has gone to the petroleum refining industry.

FOSTER WHEELER

chaser changes. The taper with the receding-chaser die head is accurately controlled and produced through a sine bar which is adjustable and which gradually recedes the chasers as the head is propelled forward by means of a leadscrew. Setup changes on this machine can be made quickly and accurately. It is geared for high-threading speeds and is very simple to operate.

A distinctive feature is the air-operated chucks. The use of air-operated chucks greatly increases operating efficiency since handling time of the work to be threaded is reduced to a minimum. The machine assures the accuracy for threads which is essential in making fast, leakproof piping assemblies.

Lane-Wells Co.

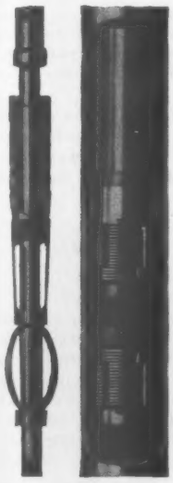
Los Angeles, Calif.

Lane-Wells Building

In attendance

RODNEY S. DURKEE, president
NORMAN L. DORN, vice president and chief engineer
M. E. MONTROSE, general sales manager
MORTON Z. HIGGS, Gulf Coast division manager
JOHN E. HUFF, assistant sales manager, Gulf Coast division
R. B. McCULLAR, Mid-Continent division manager
CHARLES T. CASEBEER, sales manager, Mid-Continent division

Products displayed: Gun perforator, packers, electrolog, liner hangers, oil-well surveys, bridging plugs, survey instruments.



The company has introduced a new drillable bridging plug designed for faster operation, accurate depth placement and absolute pack-off. Run in place and set by a Lane-Wells gun perforator service unit, this new plug is lowered into the hole much faster because of greater clearance between the plug and the casing. Accurate weighing and measuring devices assure positive control and accurate depth placement. The plug design makes certain it will stay exactly where it is set. The slips are actuated by the setting tool and excessive pressures from above or below only tend to set them tighter. The synthetic rubber sleeve, automatically expanded, is provided with lips on both ends. Increased fluid or gas pressure only tightens the pack-off.

Many important operating features make the Quinta-Seal Circulation Type B packer outstanding, it is stated. Five flat side-wall rings of rubber or neoprene provide ample bearing surface that gives a positive seal and resistance to gas pressure. Heat-treated alloy steel slips give a positive grip without cutting. The body of seamless steel casing or tubing has the same internal diameter as the string on which the packer is run. The large circulation area between the packing assembly and the tube permits it to be set and reset as often as required, without swabbing action, even in heavy rotary mud, and to be run in and out at normal speeds.

Larkin Packer Co.

St. Louis, Mo.

111-112 Oklahoma Building

In attendance

J. J. LARKIN, SR. — W. H. LARKIN
J. J. LARKIN, JR. — C. F. DOUGHERTY
W. H. ADAMSON — H. S. LINDENMUTH
T. E. ALEXANDER — R. A. TIEMANN
E. O. KUETTNER

Among the company's regular line of equipment that will be displayed, including float equipment featuring the ball-type float shoe and collar, and the bake-

Gotkoo!
WATER CANS & COOLERS

GOTT Water Coolers are the convenient way to keep drinking water handy to the worker, protect it from impurities. Their exclusive construction keeps water cool for long periods. Snug fitting large removable top, handy non-leaking push button faucet. GOTT Water Cans for handy field use. Your Supply Store has them, get one today!

H. P. GOTT MFG. CO.
WINFIELD, KANSAS
KEEP PURE DRINKING WATER ALWAYS HANDY

Consider These Uses
OF COFFING "SAFETY PULL" RATCHET LEVER HOISTS

- Pulling rods to power wells.
- Pulling motors in company garages.
- Raising and lowering suction hose.
- Bending pipe.
- Handling heavy strange items.
- Raising, lowering and installing pipe lines.
- Pulling super heater exchange bundles, tubes and stills.
- Pulling up guy wires, messenger wires and underground cables.
- Miscellaneous work wherever a lift or pull is required.

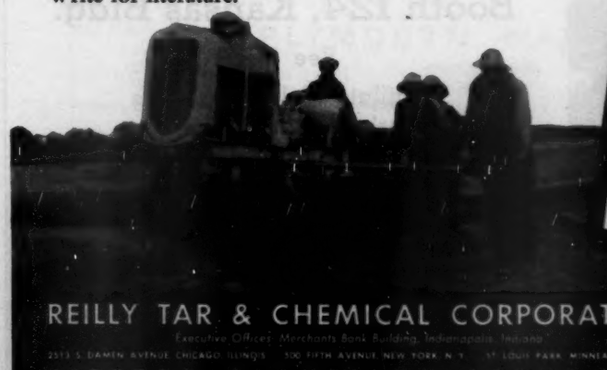
Built from the ground up as a light weight portable ratchet hoist, especially adaptable for use in the field where heavy cumbersome hoists were inadequate and expensive to handle. The Coffing Safety-Pull ratchet lever hoist is the safest hoist built because it is the only hoist equipped with a dual ratchet and pawl assembly, independent of each other, and the handle is always under control. The first successful ratchet hoist was originated, developed and pioneered by Coffing Hoist Company. The Coffing "Safety Pull" is light in weight and is recognized as the simplest and most reliable of all types of hoists. Capacities ¼ to 15 tons, weighing from 14 to 150 lbs.

Visit our Exhibit Booth 27, Oklahoma Building, Tulsa Show.

COFFING HOIST COMPANY
OGJ STREET — DANVILLE, ILLINOIS

ADDING *Generations of Service* TO OIL PIPE LINES...

- Reilly Primer and Pipe Enamel provide dependable protection against rust and corrosion resulting from soil acids and abrasion. Withstand wide extremes of temperature variation. Widely used throughout the industry with the approval of foremost pipe line engineers. Write for literature.



Reilly PRIMER and PIPE ENAMEL

REILLY TAR & CHEMICAL CORPORATION
Executive Offices: Merchants Bank Building, Indianapolis, Indiana
2513 S. DAMEN AVENUE, CHICAGO, ILLINOIS — 500 FIFTH AVENUE, NEW YORK, N. Y. — ST. LOUIS PARK, MINNEAPOLIS, MINN.
FIFTEEN PLANTS TO SERVE YOU

From 300-lb. test to 2500-lb. test

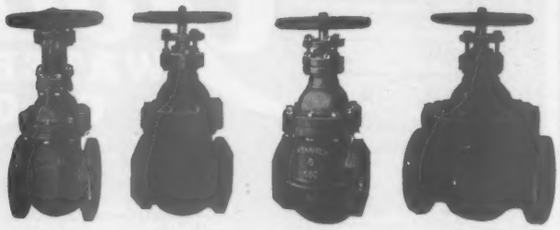


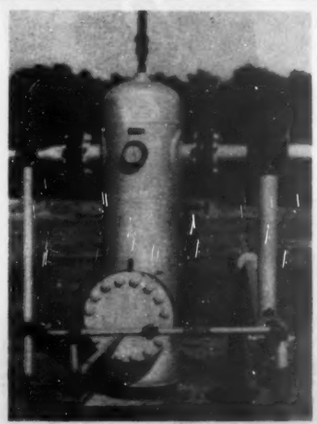
Fig. 170 400-lb. Test | Fig. 187 700-lb. Test | Fig. 177 1000-lb. Test | Fig. 192 1600-lb. Test

a gate valve for every oil and gas industry service

THE Kennedy line of valves for the oil and gas industry includes types for low, medium, extra heavy and extreme pressures, with screwed or flanged ends, and with stationary or rising stems. Each type is designed with special reference to service requirements in oil and gas fields, refineries, pumping stations, pipe lines and distributing systems. Bodies are heavily proportioned with exceptional strength and rigidity; disc mechanisms have thoroughly proven their easy and positive operation; stuffing boxes, flanges and pipe end hexes are exceptionally deep. Standardizing on Kennedy Valves is a convenience because it gives you a single source for all your valve needs. More than that, it assures dependable operation and lastingly reliable service no matter what may be the fluid, pressure, temperature or frequency of operation.

The Kennedy Valve Mfg. Co., Elmira, N. Y.

KENNEDY
VALVES with Extra Value



KV 1000-lb. Distillate Separator

VISIT US AT

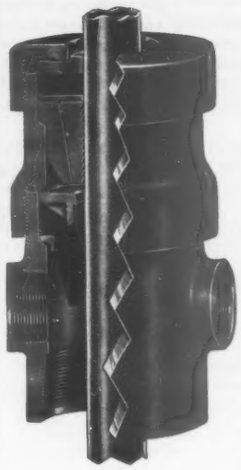
Booth 124, Kansas Bldg.

See Our

Distillate-Well Separators
Peerless Mist Extractors
Meter Type Odorizers
Steam Separators
Line Separators
Scrubbers

PEERLESS MFG. CO.

113 Murray St. DALLAS, TEXAS



lite guide, it will feature several new and improved items added to its line during the past year.

There will be on display several styles of the company's new forged-steel tubing head with a neoprene tubing stripper. The head, which has a forged steel body with forged outlets, all-steel parts throughout, and an oil and wear-resistant neoprene stripper of advanced design, is available in six different styles built around one basic body type, all of which are mutually convertible in the field to any style required. This unit can be furnished to suit 5½, 6, 6⅝ or 7-in. o.d. casing, for use with 2, 2½, or 3-in. regular or upset tubing, and with outlets ranging in size from 2 in. to 4 in. standard as desired. A feature of prime importance to all material of this class is the ruggedness and over-all safety factor which is built into the tubing head to provide a trouble-free piece of equipment. Be certain to inspect the tubing heads at the Larkin booth.

The new "Zin-Cote" electrogalvanized fittings will also be displayed. The company's seamless bull plugs and swedged nipples are now protected by a special zinc coating which assures complete protection against corrosion or rust, provides a smooth free-running thread, and which will not chip or peel in service. The new easy-to-read label, the finished workmanship throughout, and especially, the Larkin "red-thread" identification for drill-pipe profile threads are noticeable improvements.

Other new equipment to be shown will be the neoseal hook wall pumping packer with a neoprene packing element; the new Simplex sand pump, with removable stinger and smooth plunger; and the casing centralizer.

Leeds & Northrup Company

Philadelphia, Pa.

Booths 29 and 30 Scientific Building

Representative models of the Micromax line, indicating, recording and controlling instruments, are displayed in operation. In addition, three demonstrations illustrate important advantages. Micromax pneumatic control is demonstrated by an operating device which shows how a pneumatic balance is used for close temperature control, just as an electric balance (the potentiometer) is used for accurate temperature measurement.

How temperature control is helped by the automatic standardizer in Micromax is shown by a second demonstration in which the visitor substitutes new or old, hot or cold, dry cells.

In the third demonstration, Micromax speaks for itself and shows how it controls temperature changes "too tiny for the human eye to see . . . while they're small and easy to handle."

Le Roi Co.

Milwaukee, Wis., and Tulsa, Okla.

Block R

In attendance

C. W. PENDOCK, president
J. R. FRANTZ, vice president
A. F. SHELLER, secretary and works manager
W. R. KARLL, general sales manager
P. W. EELLS, technical sales manager
J. D. BeVIER, service manager
L. G. VALDES, Tulsa branch manager
D. W. MORTONSON, Tulsa office manager
R. PRIDE, sales engineer
C. VOGT, service
H. HUMMER, service
F. LYTLE, service
R. MOSS, service

Exhibiting several models of engines from its comprehensive oil-field line. On display will be two drill-

ing and pipe-line pumping engines, the 350-hp. 12-cylinder Model RX1SV and the 175-hp. six-cylinder Model RX1S. These engines are of the heavy-duty valve-in-head type, designed especially for oil-field service. They are equipped with a Twin Disc oil-field clutch and will burn natural gas, butane, or gasoline.

The company will show three pumping engines. Its Model BX is a four-cylinder, L-head engine, developing up to 10 hp., and Model D201 is a four-cylinder, valve-in-head engine rated at 26 hp. maximum, which has found extensive use in the oil fields for years. The third is its new Model D71, a four-cylinder, valve-in-head air-cooled engine developing a maximum of 13 hp. It has been designed especially for oil-field service. It has a three-bearing crankshaft and force-feed lubrication—exclusive features in the air-cooled field. The company will also exhibit its "Weather-proof" 5-kw. light plant.

Leland Equipment Co.
Tulsa, Okla.
Block U

A. Leschen & Sons Rope Co.
St. Louis, Mo.
31 and 32 Texas Building
In attendance
WILLIAM C. HENNING — L. E. DRESSLER
WILLIAM G. JORDAN — L. W. WEYLER
C. H. WATSON — J. C. HOFFMAN
E. E. LAMBERT

The practical part of this exhibit will consist of a complete assortment of samples of wire ropes used today in the oil fields. These samples will include the well-known "Hercules" (Red-Strand) wire rope in round strand, flattened strand and nonrotating construction in both preformed and standard types. Of particular interest to drillers and producers will be the samples of preformed flattened-strand rotary lines.

Lewis Brothers Co.
Tulsa, Okla.
59-60-61 Oklahoma Building
In attendance
PAT S. LEWIS — FLOYD E. LEWIS
BO BARDSLEY

Featuring their new heavy-duty snatch block which has been added to their line of equipment during the past year. This block is slow speed, simple in construction, and is built to withstand the extremely heavy loads required in oil-field service.

The block has an 8-in. steel sheave grooved for ⅝-in. wire rope. Drop-forged swivel hook of ample capacity and malleable side plates. It is Zerk lubricated, with a grease capacity of approximately ½ lb. of graphite lubricant. Grease retained and bearing protected from water and mud with metallic cased oil seals latest design.

Lincoln Electric Co.
Cleveland, Ohio
201-202-249-250 Oklahoma Building
In attendance
A. F. DAVIS, vice president, Lincoln Electric Co.
B. K. SMITH, president, C. K. RICKEL, secretary, and R. L. LOONEY, Big Three Welding Equipment Co., Houston, Tex., joint exhibitor

The exhibit of arc-welding equipment will include latest models of stationary and portable "Shield Arc S.A.E." arc welders with all new features including self-indicating dual continuous control. The demonstrations will include welding with recently developed electrodes:

"Fleetweld 10"—a heavily coated electrode of the shielded-arc type, designed specifically for making the last pass in multiple-pass, down-hand welds on flat surfaces in mild steel, providing full slag coverage and an exceptionally smooth bead.

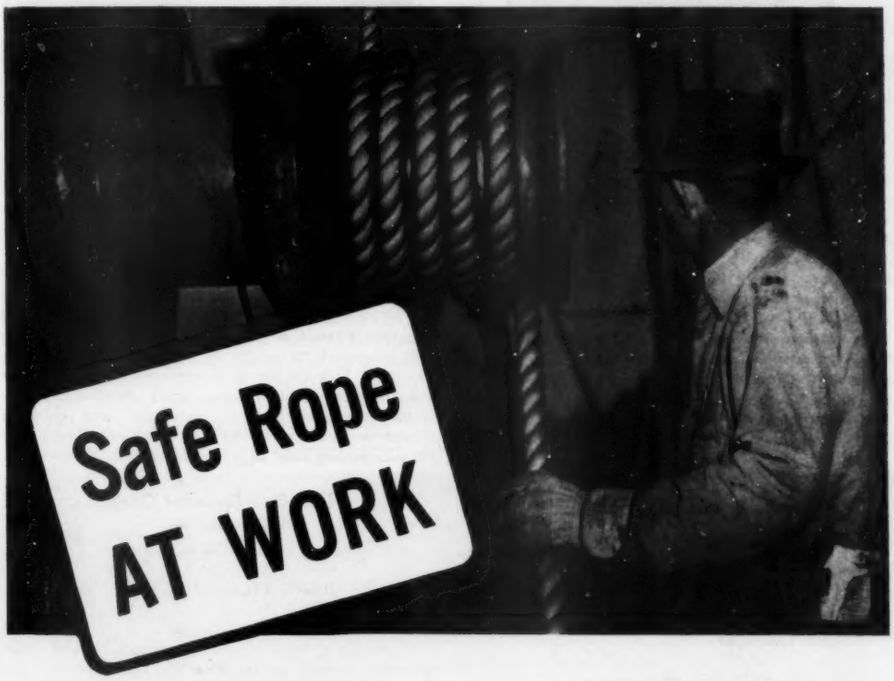
"Fleetweld 9-HT"—a heavily coated steel electrode of the shielded-arc type designed specifically for flat welding of deep-grooved joints in the higher tensile steels now being used in the construction of pressure vessels.

"Stainweld C"—a coated electrode designed for welding the stainless steels of the 18 per cent chromium-8 per cent nickel and molybdenum content designated as Types 316-317.

"Manganweld B"—a bare electrode designed for building up worn manganese steel parts of 11 per cent-14-in. manganese type.

"Hardweld 50"—a medium carbon steel electrode (approximately 0.50 per cent carbon) designed for building up steel parts and surfaces to resist deformation and wear, and to produce a tough, dense deposit machinable at slow speed.

"Surfaceweld A"—a fine-grained alloyed powder to



It's PLYMOUTH OIL FIELD MANILA CORDAGE

As every driller knows, extremes of weather, friction, and strain are tough on the life of rope. That is why Plymouth Oil Field Manila Cordage is made of the best adapted grades of Manila fiber, painstakingly selected for use under exacting oil field conditions. Careful, uniform construction and special lubrication by skilled ropemakers assure maximum protection against severe internal stress, surface wear, heat, and flexing. No wonder Plymouth is championed among drillers for its trouble-free performance and low cost operation.

Every coil of Plymouth Manila has the famous Plymouth Ship Brand Trade-Mark. Look for it.

PLYMOUTH MANILA

DRILLING CABLES	TORPEDO LINE	CAT HEADLINES
BULL ROPES	CRACKERS	SPINNING LINES

PLYMOUTH CORDAGE COMPANY
NORTH PLYMOUTH, MASSACHUSETTS
Oil Well Supply Co., Distributors — Stores in All Fields

PLYMOUTH
THE *Rope* YOU CAN TRUST

be applied (in a very thin layer if desired) with carbon arc to produce a smooth, dense, abrasion-resisting surface.

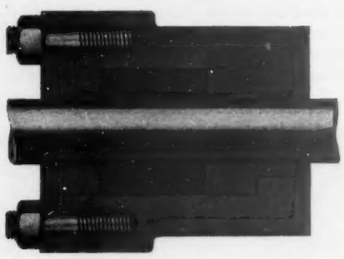
"Softweld"—a heavily coated, shielded-arc electrode designed for depositing, on cast iron, a soft alloy the entire area of which may be machined, sawed, drilled, or tapped with ease.

Latest developments in arc-welding accessories and supplies, as well as "Linc-Weld" motors will be shown.

Linear Packing & Rubber Co., Inc.
Tacony, Philadelphia

Frick Reid Building

Indicated in the illustration is assembly of precision-moulded packing rings designed for obtaining maximum sealing without gland pressure. Manufactured



from new synthetic compounds, impervious to most liquids, including all the hydrocarbons and many of the acids, it has a wide temperature range of application between —40° and +700° F. Rings are furnished in all sizes to specification, solid or split. Construction allows for a sufficient number of sealing units even in shallow stuffing boxes to insure a positive liquid seal. Par packing rings are designed with a 90° included angle on the bottom bearing surface of the ring and a radius on the top which causes the expanding action of each sealing unit against the developed pressure to bring the sealing edges in full contact with the rod and stuffing-box wall. The channels formed between the rings are an important factor in developing uniform sealing throughout the set.

Line Scale Co., Inc.
Oklahoma City, Okla.

130-131 Oklahoma Building

In attendance

J. C. CONRAD — H. L. CONRAD
S. A. McADAMS — LEONARD L. WAGNER
L. A. BLACKBURN

Featuring Line scales.

Link-Belt Company
Chicago, Ill.

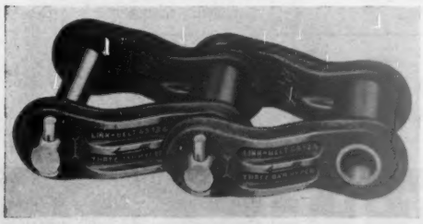
61-62-63 Texas Building

In attendance

PETE WALLACE — BOB HORTON
RED PENICK — F. S. O'NEIL
C. W. SPALDING — C. R. WEISS
C. V. LOUGHERY — H. L. STRUBE
G. H. WOODY — GEORGE HOWSON
ALFRED KAUFFMANN — J. S. WATSON
J. S. HOLL — A. H. BOIKE

The exhibit will include Link-Belt Red-Hed, Hyper, Silverlink roller and Silverstreak silent drive chains; the latest mud-screening equipment; antifriction bearings, both mounted and unmounted types; samples of other power-transmission equipment; and malleable iron and Promal castings.

Sample strands of the various rotary-rig drive chains will be on display, each tagged with the num-



ber of the chain and its ultimate strength. Notable among these samples will be SS-124, A.P.I. 4, Self-Lubricating Three-Bar Hyper rotary chain equipped with the company's patented oil-grooved drop-forged alloy steel side bar, which permits free entry of oil to chain joint and bearings. Following the company's practice, this chain has been thoroughly tested on installations in the field, and is only now being announced. Its ultimate strength is 170,000 lb. The joint of this chain (illustrated) includes a Safe-T-Head forged alloy steel pin, machined, heat-treated, ground, and fitted with cadmium plated "Oil Country" cotter; alloy steel roller, heat-treated, with oil hole for lubrication; and an alloy steel bushing, machined, case-hardened, and ground internally and externally, having two oil holes.

The antifriction bearing display will include samples of Link-Belt Shafer self-aligning roller bearings of both single and double-row types, and with or without mountings.

For screening and reconditioning rotary mud there will be displayed the new Link-Belt dual hookup. This consists of two 24 by 48-in., NRM-124 vibrating screens

mounted on skids as one unit, with unitized mud-collecting tank and inlet chute, and one motor driving the two screens independently. This screening unit will be wired up to permit operation by attendant. The inlet to each screen is equipped with adjustable swinging gates for assuring good distribution, controlling the mud flow to screen cloth, and providing means for shutting off the flow completely. Numerous advantages are cited in a new folder, No. 1872.

Link-Belt Speeder Corp.
Chicago, Ill.

Block L

In attendance

GUS OLSON, Chicago
H. H. MILLER, Dallas
HAYES PARSONS, Chicago

Exhibiting a ⅝-yd. Model LS-40 shovel-chane. This machine, because of its mobility, light weight, low ground-pressure, and variable speed—up to 4 miles per hour, is described as particularly suited for all-around oil-field service, pipe laying, ditch and slush-pit digging. and hoisting operations. It can be furnished with either gasoline or diesel-engine drive, equipped with "Caterpillar" crawlers fitted with recoil springs which prevent clogging and eliminate breakage. The tracks equip the machine especially for work requiring constant travel, long moves, and operation over rough or mountainous country, as well as soft ground.

It is quickly converted from shovel to crane without necessitating changes in the main unit.

LubriKup Company, Inc.
Williamsport, Pa.

184 Oklahoma Building

In attendance

I. G. BATDORFF — W. M. CONNOR
M. L. FRAZIER — C. S. VOGEL
W. P. WOOD — R. R. WYNNE

Exhibiting the company's JerkerKups, a universal packing. JerkerKups are formed to size and will always fit the liner for which they are intended, are so constructed that they can be used in pumps handling a wide variety of fluids, including crude and refined oils, fresh and salt

water (hot or cold), kerosene or gasoline. Cup type pistons, equipped with JerkerKups, are available for all makes and sizes of pumps. Other products displayed include valve cups, seat cups, seat rings, repacks and Resistoil rings.

Lone Star Cement Corporation
Dallas, Tex.

73-74 Scientific and Technical Building

In attendance

GEO. T. HUNTER — EARL MARSH
S. F. GREELEY — H. A. WILLIAMS
J. B. ROBERTS

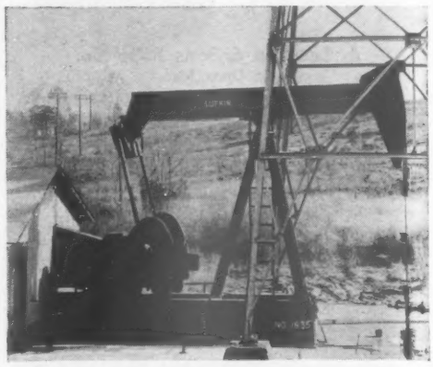
Lufkin Foundry & Machine Co.
Lufkin, Tex.

Block 3

In attendance

All firm representatives

Pumping jacks on display: TC-OL-51B which will be driven by a 40-hp. Cooper-Bessemer vertical engine; TC-2A-36 unit, Waukesha; TC-3-22D unit, Hercules;



TC-44-15 unit, International No. 1855-56; TC-77-3 unit, Waukesha; No. 35 gear box with back-crank equipment for pulling an extra well; No. 17 jack; No. 5 cutaway gear box showing the oiling system and operation of the gears.

The 44-15 will be the only new unit that was not shown last year.

Lufkin Rule Co.
Saginaw, Mich.

121-122 Texas Building

In attendance

R. M. BENJAMIN — HARRY WILSON
FRED HOLLINGWORTH — ED BROWN

Chrome Face is the name of the line of steel measuring tapes that has just been put on the market by this company. These tapes are entirely new and different.

Lufkin Chrome Face, the new steel tape

The jet-black markings against the satin chrome-white surface are not only easy to read but are durable. These are their outstanding features and these two features are most important to every user of tapes. They are accurate steel tapes and the satin chrome-white surface is unusually free of glare. Being built up by chrome plating these tapes are extra strong and resist rust. They will not crack, chip or peel.

As a tank-gaging tape the Chrome Face line will appeal most strongly to the oil industry for two principal reasons: on its dull chrome-white surface, the oil line is easy to locate and the measurement easy to read, even in poor light.

A full line of Chrome Face gaging tapes is now of-

fered, including the popular "Atlas." "Anchor" is the brand in genuine leather case. Made in ⅝ and ½-in. width. The ½-in. width is especially suitable for general measuring in the oil industry because its greater width gives extra durability and it accommodates larger figures.

Chrome Face tapes are the result of long and careful study and experimentation on the part of the company.

The Lunkenheimer Company
Cincinnati, Ohio

67 and 68 Oklahoma Building

In attendance

HARRY A. BURDORF, sales manager

Sales representatives

JOSEPH WALDECK — ELMER R. TIEBERMAN
D. R. DAVIS — MARSHALL N. STICKEL
E. P. LUNKEN — JOSEPH A. BIRKHEAD

The exhibit will consist of bronze, iron, steel and corrosion-resistant alloy valves, lubricating devices, cocks, etc., for use in the petroleum industry. Sectioned models of many of the valves will be shown.

McCord Radiator & Mfg. Co.
Detroit, Mich.

72-73 Oklahoma Building

B. F. McDonald Co.
Houston, Tex.

54 California Building

McAlear Manufacturing Co.
Chicago, Ill.

32 Kansas Building

In attendance

WILLIAM LUDVIK — THOMAS LANEY
FRED SKLENAR

The company invites producers and refiners to submit their pressure, level, temperature and flow-control problems and to see him its equipment will help to solve them.

One of the highlights is No. 115 diaphragm motor valve. It is a ball bearing, multiple spring valve which embodies the essential flow characteristics required for operation with pilot and instrument-type control equipment. The valve is practically frictionless and the movement of the valve plugs is proportionate to the flow and load.

McAlear No. 117 diaphragm motor valve

Also included is another diaphragm motor valve—No. 117—built especially for high-temperature service in refineries and natural-gasoline plants. It is an exceptionally rugged valve with cooling fin protection for the stuffing box. The superstructure of the No. 117 valve incorporates the same friction-free features of the No. 115 valve.

Other equipment that will be seen include the latest developments in liquid-level controllers (with or without pilot control) as well as a new type of regulator designed to control both vacuum and pressure.

McKissick Products Corp.
Tulsa, Okla.

206-245 Oklahoma Building

In attendance

W. H. McKISSICK — C. B. JOHNSON
H. V. FLEMMING — HUGH ROBINSON

Featuring the company's new safety traveling block for light rotary drilling. This block has created great interest as a safe, sturdy, and compact unit to be used in the light portable and semiportable rigs in use today. Other items to be shown for the first time will be the company's Peerless snatch block, tong block, and coring block. The complete line of the company's blocks for all uses will be shown, as well as its tubing catcher with positive anchor attachment, its tubing bleeder, and Peerless load binders and stuffing boxes.

New McKissick traveling block

Of special interest will be the line of safety floor blocks with connections to adapt them to any well-servicing condition.

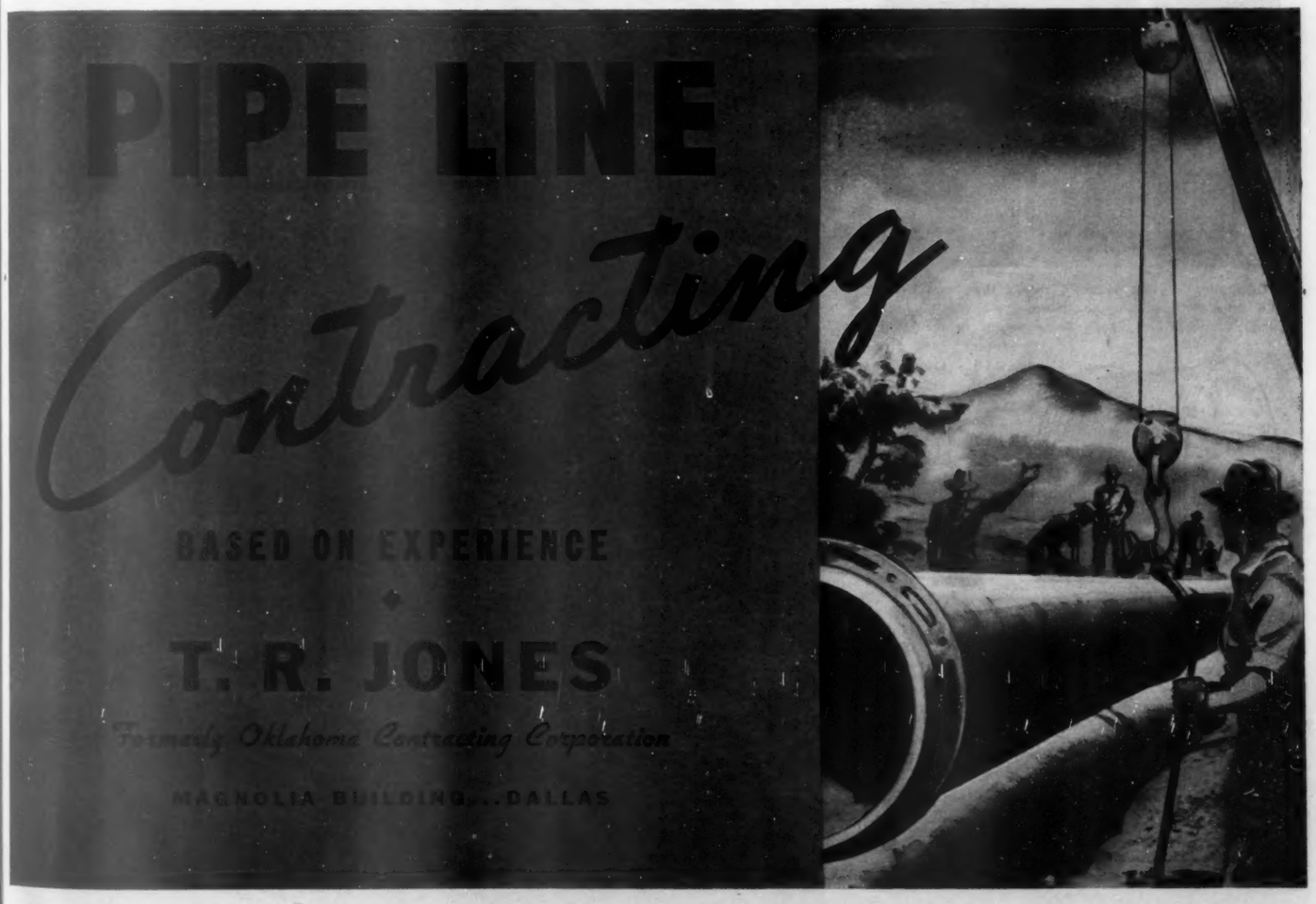
Macklin Co.
Jackson, Mich.

33 California Building

In attendance

R. S. THOMAS — L. J. GARBER

Exhibiting grinding wheels of various descriptions, including cup wheels, saucer shapes, cones, etc. Also



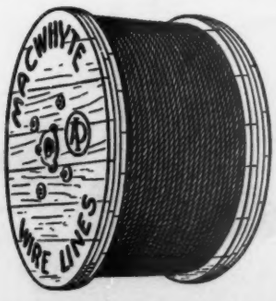
in different bonds such as vitrified and resinoid. The wheels shown will be those used in the oil fields and oil-field equipment plants for production purposes, tool grinding, weld grinding, etc. One of the features will be two miniature grinders. These grinders will operate automatically and perform an actual operation. One, a cutting-off machine, will show the efficiency of grinding wheels for cutting bar stock, piping, etc. The other is a swing-frame grinder as used in foundries for grinding large castings.

Macnick Company
Tulsa, Okla.
(American Recording Chart Co., sales representative)
260 Oklahoma Building
In attendance
JOE YUNKER FRANK REMMER
JIMMY DUNN
MISS JOE QUINTON will operate the hobbing machines

Displaying the company's new hermetically sealed chart clock, the dual automatic parking meter, the Anubis recording gravitometer, the A. G. time bomb and various other products manufactured by this company in Tulsa. An interesting feature of the exhibit will be two small gear-hobbing machines doing actual production work in hobbing clock pinions.

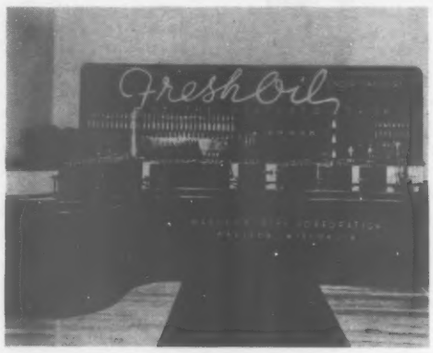
Macwhyte Company
Kenosha, Wis.
Booth 69 Oklahoma Building
In attendance
H. E. SAWYER, vice president
JAMES A. LONG, assistant sales manager
F. J. NELSON, advertising manager
H. M. ROBINSON
GOODWIN JOHNSTON
J. F. BONNELL
FRED E. BENNETT
GLEN LONG
WILLIAM C. RUSSELL, wire rope engineer

Displaying several featured rotary lines and cable-tool drilling lines. Notable among these will be independent wire rope center, Seale patent construction, rotary lines for Mid-Continent fields, special California drilling lines for California fields, and Hi-Lastic cable-tool drilling lines. Another line featured will be a noncorrosive monel metal wire rope for refineries. In addition will be displayed and sampled pumping lines, nonrotating lines, core-barrel lines, coke-still cracker lines, winch lines, and sand lines. Also, wire-rope slings of special braided construction for handling pipes, bars, tools, and equipment will be displayed.



Madison-Kipp Corp.
Madison, Wis.
56-57 Kansas Building
In attendance
W. G. COLES, chief engineer
A. T. LILLEGREN, sales manager

Exhibit will include a complete operating display of lubricators and high-speed air tools, as well as typical die castings which are produced in the company's die-casting plant or on machines manufactured by it for customers. It will, for instance, show the "Head of Figures," which is the main operating assembly in gasoline-computing pumps. The "Head of Figures" is



manufactured on the Madison-Kipp machine by the Veeder-Root Co.

Will also display Evinrude Zephyr outboard motor in which the cylinders, crankcase, propeller, and a great many other important parts are die cast of aluminum on the company's equipment. There will be other interesting examples of die casting both as parts and assembled units.

Magnus Chemical Co.
Garwood, N. J.
26 California Building

Mallinckrodt Chemical Works
St. Louis, Mo.
10 Scientific and Technical Building

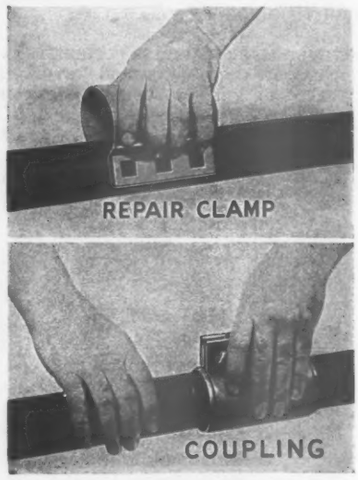
Fine chemicals for industry are the feature of the display. The main groups of chemicals to be shown are analytical reagents, photographic chemicals, stearates, mercury, and mercaptans. Samples of various chemicals showing the free-flowing characteristics of the company's chemicals will be on hand. Also samples of many package advancements sponsored during the past few years. Samples of mono, di, and triacid stearates which were originated in the company's laboratory will be displayed. These products enable grease manufacturers to work with definite compounds rather than mixtures. The result is that they have more chance of duplicating their results. Literature and information on all lines shown will be available.

Maloney Tank Mfg. Co.
Tulsa, Okla.
116-117 Texas Building
In attendance
J. S. WARREN, president
J. C. HIGHFILL, district sales representative, Wichita, Kans.
H. W. HIGHFILL, district sales representative, Wichita, Kans.
CHARLES W. STEVENS, district sales representative, Wichita, Kans.
M. B. GARNER, district sales representative, Fort Worth, Tex.
CARL FOLKNER, district sales representative, Artesia, N. M.
E. G. MURPHY, district sales representative, Houston, Tex.
ROY GUTHRIE, sales representative, Midland, Tex.
CARL KINSER, sales representative, Corpus Christi, Tex.
ROY TARRANT, sales representative, Lafayette, La.

Exhibiting its high and low-pressure oil and gas separators. A number of valves and accessories for use with bolted steel tanks will also be on display.

The company's separator, introduced in the fall of 1937, has offered a number of special features in separator design, chief among which have been high initial travel for gases upon entering the separator, a knockout element of new design, patented mist traps of new and high efficiency and boiler-type manholes held by only two bolts. All valves have full-area passages, and all accessories are made by manufacturers of established reputation. In its 2½ years on the market, it is reported that this separator has enjoyed an outstanding success.

Manufactured Specialties Co.
Pittsburgh, Pa.
88 Kansas Building
In attendance
W. F. PFLAUM "TAL" FINLEY

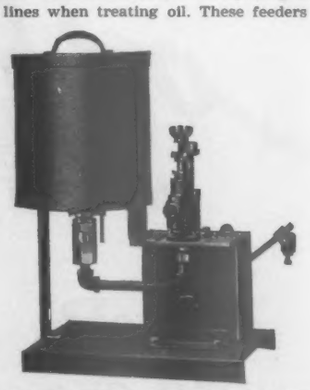


Exhibiting the recently introduced Morris line of pipe couplings and repair clamps which embody many unique features of economy, utility, and simplicity. Made of a specially processed galvanized steel, and factory-assembled, only a single wrench is necessary to apply. Couplings work equally well on plain-end or threaded pipe.

Also exhibiting repair clamps similar in design to the coupling. Application is "simplicity" itself. The clamp is simply pushed over the pipe at the leak; bolts inserted and moved to any position most convenient for tightening; a strip gasket slid over the leak between the pipe and clamp, and bolts tightened. The gasket readily "flows" into the rough or badly corroded surfaces, thus giving a perfect and permanent seal, while at the same time the pipe is reinforced around the full diameter of the repaired leak.

Manzel Brothers Co.
Buffalo, N. Y.
50 Oklahoma Building
In attendance
ALBERT S. ISCH, sales manager
W. C. JACKSON, oil-field representative
H. J. MANZEL, president

Among the new products to be exhibited will be the Series "40T" chemical feeders for injecting chemicals into oil lines when treating oil. These feeders are de-



CH-41-T ratchet-drive chemical feeder

signed to inject the chemical into the oil line in exact proportion to the amount of oil being pumped, and can be regulated to supply any desired amount of chemical. All of the driving mechanism is enclosed and operates in a bath of oil at all times. The pumping unit, which is the only part of the feeder which comes

EDITION
What's New in OILDOM
SHRINK THREAD DRILL PIPE AND TOOL JOINTS
NOW REPLACEABLE AT THE WELL
Of special interest to users of Shrink Thread Drill Pipe and Tool Joints in every field is the development of replacement equipment for field processing at the rig. Tool Joints for Shrink Thread Drill Pipe can be quickly and easily replaced at the well through the use of a new "Spang" portable furnace, equipment, tools and accessories readily available from strategic locations throughout the oil fields.
The fundamental simplicity of the Shrink Thread Design permits repeated tool joint replacements over the entire service life of the drill pipe.
A special booklet describing Shrink Thread Drill Pipe and Tool Joints, and this new replacement field service is available through any of the offices listed below.
SPANG CHALFANT, INC.
GENERAL OFFICES: Grant Building, Pittsburgh, Pa.
SALES OFFICES:
Boston
New York
Philadelphia
Pittsburgh
Atlanta
Chicago
St. Louis
Tulsa
Houston
Denver
San Francisco
Los Angeles
An Exclusive Field Service for Users of
STANDARD SEAMLESS SHRINK THREAD DRILL PIPE

in contact with the chemical, is outside of the feeder where it is readily accessible.

Also displayed will be the Model "94" force-feed lubricator, designed especially for the lubrication of diesel and gas engines, air and ammonia compressors, and other equipment requiring efficient lubrication with a minimum amount of oil. On these lubricators the pumping units are oil sealed at all times, an exclusive feature.

Marmon-Herrington Co., Inc.
Indianapolis, Ind.

Block W

In attendance

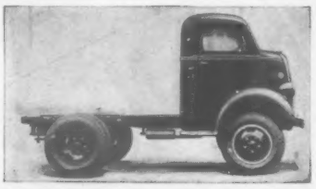
A. W. HERRINGTON, president
C. ALFRED CAMPBELL, general sales director
HAROLD L. FISHER RAY N. SCHMELTZ

Sales and service engineers

ROBERT L. SKIDMORE, export representative

Representatives of the Adams Motor Co., Tulsa, distributors of Marmon-Herrington equipment in the Tulsa district

Following the company's policy for almost a decade, an unusually interesting exhibit of Marmon-Herrington all-wheel-drive vehicles used in oil-field service will be made. Among the units on display will be several models of Marmon-Herrington all-wheel-drive Fords and heavy-duty trucks with gross capacities up to 70,000 lb.



Marmon-Herrington all-wheel-drive 101-in. C.O.E. Ford

In addition there will be a stripped chassis of a Marmon-Herrington all-wheel-drive Ford, showing standard Ford and Marmon-Herrington conversion parts

Marmon-Herrington all-wheel-drive Ford marsh buggy

painted in contrasting colors; cutaway working models of Marmon-Herrington constant velocity joint steering ends, auxiliary transmissions, power, take-offs, etc.

Hundreds of photographic views of Marmon-Herrington all-wheel-drive Fords and heavy-duty trucks in action all over the world will be shown.

Marshall Supply & Equipment Co.
Tulsa, Okla.

97-98 Kansas Building

In attendance

J. O. BRASWELL, sales manager
REX MARTIN TOM CHRISTLEY
JOHN NESTER E. T. ROHRKASTE

Exhibiting a very complete line of small tools necessary to keep drilling operations, pumping wells, pipe lines, and refineries in continuous operation. Featuring such items as wrenches of all types and sizes, taps and dies, twist drills, electric tools, grinding wheels and abrasives, files, hack-saw blades, and other items too numerous to mention that are constantly used by the men of the oil industry responsible for keeping the wheels turning.

While the company receives a very sizable portion of its sales volume from companies engaged directly in the oil industry, it also does extensive business with all kinds of industrial manufacturers that supply the oil industry with its equipment and supplies, and for this branch of the industry the company will exhibit a few items that are usually found in a manufacturer's plant and machine shops.

In addition to the exhibit this company will also be associated as distributors with the following companies: Henry G. Thompson & Co., Booth 90; Carborundum Co., Booths 91-92; Bonney Forge & Tool Works, Booths 93-94, and Greenfield Tap & Die Corp., Booths 95-96, all in the Kansas Building.

Marshalltown Manufacturing Co.
Marshalltown, Iowa

64 California Building

In attendance

M. T. KAPPELE G. F. RUOPP
J. M. CONSIDINE

Pressure gages for all pressures and purposes will be displayed. A special exhibit showing instruments designed particularly for the drilling and producing companies will be found interesting. This will include the Blackface mud gage, boiler and feed-pump gages,

DON'T MISS IMPORTANT TELEPHONE CALLS

AT THE OIL SHOW

You can be sure to get all important telephone calls at the Oil Show—and get them right!—by using The Oil and Gas Journal's convenient telephone service. The several telephones in this publication's exhibit are for the use of show exhibitors and their visitors. There is no charge for this service.

Burgess Acousti-Booths—the Modern Doorless Phone Booths—are installed in The Oil and Gas Journal's exhibit to provide quiet, privacy, comfort and convenience for the telephone user. Scientifically designed acoustic walls blot up extraneous noise and keep the speaker's message private. Open construction permits ample natural ventilation.

Examine the Burgess Acousti-Booths at The Oil and Gas Journal exhibit. You'll find them interesting!

IN YOUR OWN PLANT

Is there noisy machinery near your plant telephone? You can do away with this distracting interference by installing a Burgess Acousti-Booth, the doorless booth that really keeps out noise. It is easy to talk in the "zone of quiet" within the booth, because the patented sound-absorbent lining blots up plant racket. The open construction makes it always well ventilated and easy to clean. Hundreds of these booths are now in daily use in all types of industrial plants.

Write Dept. O for interesting booklet, "An Island of Quiet in a Roaring Sea of Noise," which contains illustrations, descriptions and prices of Burgess Acousti-Booths for factory and office telephones.

BURGESS BATTERY COMPANY
Acoustic Division
500 W. HURON STREET CHICAGO, ILLINOIS
Operating under Burgess Patents

BURGESS ACOUSTI-BOOTHS

An

ALCO DIESEL

for

UNIVERSAL APPLICATION

● **Eight, 6 cylinder, 12½" x 13", Alco Diesel engines have recently been installed by the Magnolia Pipe Line Company on their new Middlewest line. This application demands HIGH SERVICEABILITY when pulling CONTINUOUS HEAVY LOADS and burning LOW GRADE FUEL.**

This Alco Diesel, due to its exceptional ruggedness, is eminently suitable for heavy duty services. It is in successful operation in Tankers, Tug Boats, Cutters, Hydraulic Dredges, Cargo Vessels, Public Utility and Municipal and Industrial Power Plants, Irrigation, Oil Pipe Lines, and Railway Motive Power.

DIESEL ENGINE DIVISION **AMERICAN LOCOMOTIVE COMPANY** AUBURN · NEW YORK

the gas engine fuel gage, the heavy-duty lubricating oil gage, synchronizing vacuum gages for engines, etc.

The Blackface mud gage illustrated will be introduced—a new addition to the Marshalltown line. The manufacturer claims this instrument has many superior features. The Blackface dial with white numerals and graduations provides ease of reading under any lighting conditions. The instrument is actuated by a single-joint steel Bourdon tube. The movement is of monel metal, the bottom piece of stainless steel and the mounting is dust and moistureproof. The gage and diaphragm assembly are completely filled at the factory with a rust-resisting nonfreezing liquid for pressure communication.

The manufacturer claims that this addition to his line rounds out the most complete line of gages available for drilling and producing operations.

Mason-Neilan Regulator Co.
Boston, Mass.

Block V

In attendance

F. K. MORRISON — E. A. BIANCHI
GORDON THOMASON — BRANT RAWSON

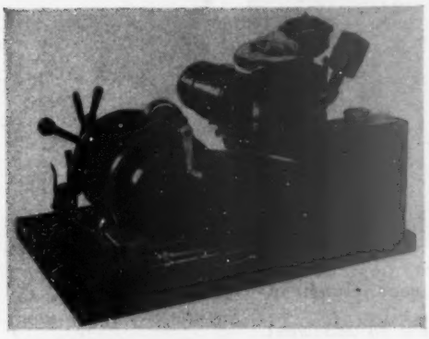
Exhibit will show the company's new demonstration truck—a traveling exhibit demonstrating the operation of Masonelian automatic control equipment. Shown for the first time will be a new line of instruments for indicating recording and/or controlling pressure temperature, liquid level and flow. Other equipment includes a full line of pressure regulators, the "Big Three" of control valves and pilot-regulated liquid-level controllers.

C. A. Mathey Machine Works
Tulsa, Okla.

39 Scientific and Technical Building

In attendance

C. A. MATHEY — L. V. ORTON



Mathey Type E measuring line reel

Equipment on display: Type E and Type G measuring line reels, measure meter, and gas-testing equipment. The Type E measuring line reel with hydraulic speed control and hydraulic governor will be in actual operation.

Merck & Co., Inc.
Rahway, N. J.

80 Scientific and Technical Building

In attendance

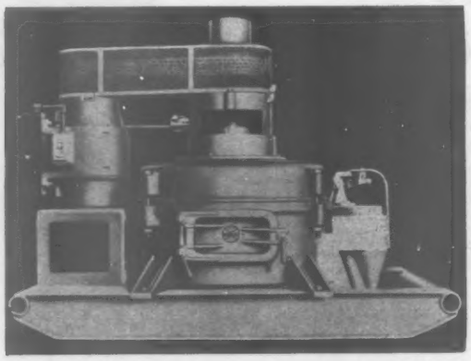
A. F. FRANTZ — J. A. FALKE

Featuring reagent chemicals used in the testing laboratories of the oil industry, illustrated by transparencies from a series of the company's reagent advertisements. The four panels will be entitled "The Chemistry of the Automobile," "The Chemistry of the Giant Telescope," "The Chemistry of the Triborough Bridge," and "The Chemistry of Rockefeller Center." The display will be finished in canary yellow and deep green.

Merco Centrifugal Co.
San Francisco, Calif.

207 Oklahoma Building

Displaying the Type A-24 centrifuge in actual operation. Of special interest to drillers will be development of the new Type A-24 concentrator, perfected for restoring, maintaining, increasing, or reducing



mud weight; for recovering concentrated weighted mud from abandoned sumps for reuse; for conserving weighting materials, and for controlling mud viscosity in rotary drilling operations. It is claimed that any desired concentration of mud weight may be obtained up to a density of 120 lb. per cu. ft. to 130 lb. per cu. ft.

Merco Nordstrom Valve Co.
Pittsburgh, Pa.

35-36-37-38 Scientific and Technical Building

In attendance

COL. W. F. ROCKWELL, president
CAPT. A. E. HIGGINS, vice president and sales manager
A. J. KERR, district manager

R. R. BUSH	J. E. B. SUNDY
TOM STACY	T. R. VAN ARSDALE
J. S. COTTRELL	F. N. DILLMAN
O. W. BARNETT	W. R. McLAUGHLIN
D. D. COLLINS	C. K. MADISON
C. E. BAIRD	H. GOTTWALD
RALPH MARRIOTT	P. C. KREUCH

Will display Nordstrom valves in the Standard, EMCO-Nordstrom and Hypreseal type with cut-open samples available to simplify the explanation of the operating

New 15,000-lb. test Nordstrom Hypreseal valve

principles. A christmas tree, 100 per cent equipped with the company's valves, will also be shown.

Featured will be the recently developed Hypreseal round-opening A.P.I. standard production valve for 7,500 lb. working pressure. Also will be given the first showing of the Nordstrom gage cock for 2,000 lb. working pressure.

Meriam & Co.
Cleveland, Ohio

27 Scientific and Technical Building

Metal Goods Corporation
St. Louis, Mo.

125 Texas Building

In attendance

S. D. HODGDON — H. C. RIEDEL
WILLIAM R. ATKINSON

Since the company's main function so far as the oil industry is concerned is one of warehousing nonferrous metals in mill form, the main story told in its display is one of service and prompt delivery. The main feature of the display will be a map of the United States which will show its various warehouse points as well as all of its mill locations in colored lights—this map to be set in front of a sheet of highly polished illuminated brass. Also there will be on display a number of interesting fabrications of these metals, most of which will be those made by various suppliers of equipment to the oil industry.

The main office and warehouse of Metal Goods Corp. is located in St. Louis, Mo., with branch warehouses in Kansas City, Mo., and Houston, Tex., and sales offices in Dallas, Tex., and New Orleans, La. The major mills we represent are the following: Aluminum Co. of America, American Brass Co., American Rolling Mill Co., International Nickel Co., Rustless Iron & Steel Corp., Shenango-Penn Mold Co., Duraloy Co., Lukens Steel Co., Youngstown Welding & Engineering Co., C. O. Jelliff Manufacturing Co., H. M. Harper Co., Northern Indiana Brass Co., Macwhyte Wire Rope Co., Driver-Harris Co.

Mid-Continent Petroleum Corp.
Tulsa, Okla.

19 Kansas Building

Mid-Continent Pump Supply Co.
Tulsa, Okla.

229-230 Oklahoma Building

In attendance

ROY DUNBAR, president
RALPH VAN MATRE, vice president
TOM HAMILTON, sales manager
MILT O'HAVER
G. F. (Bill) GRAHAM
CLIFF MILLER
D. E. (Fuzz) HARDER
PAUL COONROOD
DON SCHNOBRICK
JACK BARTON
TED SMITH, plant superintendent

Products: Oil States insert pump, tubing-type sectional liner pump, insert sectional plunger pump, Metallo-Seal pump, top hanging insert liner pump. The company will show working models in transparent materials, cut-away sections of their various pumps. It will also have products on display in the exhibits of Bovaird Supply Co. and Mid-Continent Supply Co. on Drake Drive.

GC-2800 insert liner pump with top hung seating head and lock hold down is illustrated.

Mid-Continent Supply Company
Fort Worth, Tex.

Mid-Continent Building, corner of Drake Drive and Texas Drive

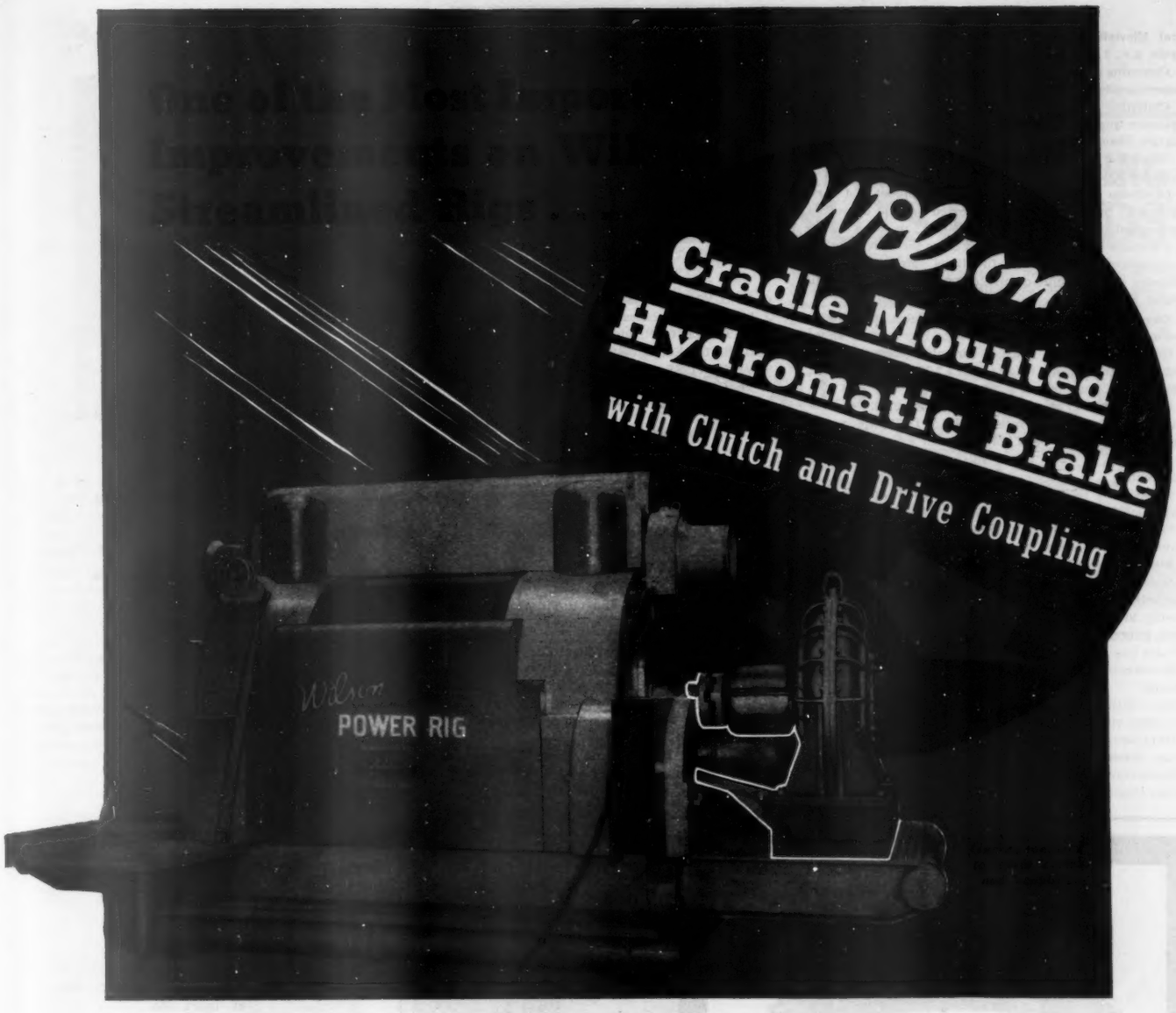
In attendance

K. W. DAVIS, president, Fort Worth, Tex.
D. H. THORNBURY, vice president, Houston, Tex.
J. A. DAUGHERTY, vice president, Tulsa
J. C. HALBERT, secretary-treasurer, Fort Worth, Tex.
F. JOHN, purchasing agent, Fort Worth, Tex.

H. O. POWELL	R. O. MOORE
C. D. HELM	A. S. GEORGE
T. M. CONE	F. J. SPURLOCK
W. I. WEST	H. McCURRY
A. L. SMITH	F. E. BRUHN
H. H. BROWN	F. R. FILES
D. S. SMITH	C. R. BROOKS
G. H. CANTERBURY	R. L. McANALLY
C. M. FLEEMAN	R. C. TUCKER
G. A. KNIGHT	P. H. EDWARDS
G. R. WEAD	G. W. WALTERS
S. W. BACKUS	H. P. MOORE
R. M. FLIPPO	J. E. EVERROAD

This company exhibits:

Cummins cold-starting full-diesel Model HGA-601 Gen-



● Time Saved in Coming Out of Hole... Equivalent to 300 Extra Horse Power!

Here is one of the greatest time savers ever developed for a rotary drilling rig—the Wilson Cradle Mounting for Hydromatic Brake with Clutch and Drive Coupling. Uses standard Hydromatic Brake—cradle mounting furnished by Wilson.

In actual operation, with the hydromatic brake mounted directly on the drum shaft, it took about 45 seconds to drop the empty blocks when pulling 90-foot stands of pipe, as compared to only 15 seconds with the hydromatic brake disconnected, or a saving of 30 seconds for each 90-foot stand of pipe when coming out of the hole—equivalent to 300 extra engine horse power!

Equipped with clutch lever at driller's control position, this Hydromatic Brake *can be disconnected at all times when coming out of the hole; and when lifting empty blocks, when going in the hole.* Greatly speeds up both operations and saves wear and tear on Hydromatic Brake, engines and entire equipment. The only rig with Hydromatic Brake clutch control at driller's position!

This rig, owned by Pettijohn Drilling Company of Los Angeles, made a round trip at 8300 ft. with 4½" drill pipe in 2 hours and 30 minutes with 2 Le Roi 350 H.P. Engines. Can you beat this!

Wilson

WICHITA FALLS, TEXAS

Wilson Sets the Pace!

● EXPORT REPRESENTATIVE: Guy E. Daniels, 30 Rockefeller Plaza, New York City.

● PACIFIC COAST DISTRIBUTOR: H. and B. Sales Co., Ltd., Long Beach, California.

eral Electric generating set, 50-kw., three-phase, 60-cycle, a.c., 1,200-r.p.m.

Cummins cold-starting full-diesel Model H six-cylinder supercharged power unit.

Cummins cold-starting full-diesel Model AMS six-cylinder supercharged marine engine with twin-disk marine reverse gear.

Cummins cold-starting full-diesel Model LIS six-cylinder 300-hp. supercharged engine.

Cummins cold-starting full-diesel Model LI six-cylinder 7 by 10-in. engine, converted for and operating on natural gas. Rated 200 hp. at 800 r.p.m.

Cummins diesel gas-conversion parts for above engine.

Cummins cold-starting full-diesel Model A four-cylinder package unit complete for installation in 1940 model Ford trucks.

Cummins cold-starting full-diesel Model A six-cylinder automotive engine.

Emsco D-38-TPM geared pumping unit, double-reduction, twin-crank, rated (A.P.I.) 7.75 hp. at 20 s.p.m., 38,400 in.-lb. peak torque at 20 s.p.m.

Emsco D-58-TPM geared pumping unit, double-reduction, twin-crank, rated (A.P.I.) 11.71 hp. at 20 s.p.m., 58,000 in-lb. peak torque at 20 s.p.m.

Emsco 7¼ by 12-in. power slush pump with cast-steel fluid end.

Emsco 15½ by 8¼ by 20-in. steam slush pump, with forged-steel fluid end.

"Universal" 7¼ by 16-in. power slush pump—an outstanding development in efficient pump operation.

Allis-Chalmers V-belt drives, sheaves and motors.

Mid-Continent oil and gas detectors, fluoroscope and gas detector—two new practical devices which can be readily installed on any rig to give reliable and immediate information regarding the presence or absence of oil and gas in the formation being drilled.

Mid-Continent automatic relief valves for oil pipe-line service.

Mid-Continent - Pacific oil-well pumps, complete and including cutaway models.

Mid-Continent Electroloy and cast-steel full opening swing check valves.

Electroloy cylinders, pistons and universal sectional piston rings.

Bethlehem A.P.I. sucker rods and pull rods.

Bethlehem Oil Country wire rope with patented "Uni-Zact" core, showing bethanizing process.

Naylor Lockseam Spiralweld line pipe and surface casing.

A.C.F. full area lubricated plug valves.

Ludlow gate valves and fire hydrants.

Veelos interchangeable and detachable V belting.

Hewitt Super rotary hose and other Hewitt mechanical rubber goods.

Manufacturers' equipment included in display and representatives attending:

Cummins Engine Co.
Columbus, Ind.
C. L. CUMMINS, president
J. L. MILLER, general manager
P. E. LETSINGER, vice president in charge of sales
D. J. BUTTLES, sales manager
S. W. CURTISS, advertising manager
J. B. CHAMBERS, manager, Mid-Continent region, Fort Worth, Tex.

American Car & Foundry Co.
New York
W. R. KOTTSIEPER, assistant sales manager, valve department
W. C. MOONEY, sales engineer, Dallas, Tex

Allis-Chalmers Manufacturing Co.
Milwaukee, Wis.
RAY ENTERS, Texrope Division
W. A. MEYER, Texrope Division
O. A. HAAS, district manager, Tulsa
D. M. McCARGAR, sales engineer, Houston, Tex.

Bethlehem Steel Co.
Bethlehem, Pa.
J. C. MILLER, manager of sales
P. E. McKINNEY, metallurgical engineer
CHARLES M. BALLARD, manager of sales, wire rope division
W. R. SHIMER, metallurgical engineer
JOHN J. LOVELL, sales engineer, Tulsa
J. E. MOORE, sales manager, Houston, Tex.
C. B. HINTON, sales engineer, Houston, Tex.
M. P. LEONARD, sales engineer, Dallas, Tex.

Emsco Derrick & Equipment Co.
Los Angeles, Calif.
GEORGE W. WALTON, vice president
C. L. LAMKIN, plant manager, Houston, Tex.
L. W. STAHL, chief engineer, Houston, Tex.

General Electric Co.
Schenectady, N. Y.
A. H. KEEN, sales engineer, Fort Worth, Tex.
G. R. PROUT, sales engineer, Dallas, Tex.
GEORGE CURRY, sales engineer, Houston, Tex.

Helm Manufacturing Co.
Fort Worth, Tex.
A. C. HELM, president

Hewitt Rubber Corp.
Buffalo, N. Y.
L. D. BIGELOW, vice president, Chicago
GENE BURTNER, sales engineer, Tulsa

The Locomotive Finished Material Co.
Atchison, Kans.
H. E. MUCHNIC, president
A. H. MOORHEAD, sales manager

The Ludlow Valve Manufacturing Co.
Troy, N. Y.
A. W. THOMPSON, vice president
R. B. TROW, district manager, Houston, Tex.

Mid-Continent Pump Supply Co.
Tulsa, Okla.
R. A. DUNBAR, president
P. VAN MATRE, secretary-treasurer

Manheim Manufacturing Co.
Manheim, Pa.
STUART GOURLEY, sales manager
VINCENT K. ALEXANDER, branch manager, Chicago
FRANK SHAFRAN, sales engineer, Kansas City, Mo.

Naylor Pipe Co.
Chicago, Ill.
E. W. NAYLOR, vice president
N. E. TURNEY, sales manager

Perfex Radiator Co.
Milwaukee, Wis.
G. G. HOLT, vice president in charge of sales

Twin Disc Clutch Co.
Racine, Wis.
G. M. GUILBERT, vice president
J. B. JENKINS, district manager, Tulsa

Midwest Piping & Supply Co., Inc.
St. Louis, Mo.
Frick-Reid Building
In attendance
C. S. SIMON, Tulsa
WILLIAM D. CLEGHORN, Los Angeles
J. L. JACOBSON, St. Louis
A. W. DEACON, St. Louis

Exhibiting complete line of welding pipe fittings. A recent addition attracting attention is the welding 45° lateral, illustrated. This will be made regularly in both standard and extra heavy weights in nominal pipe sizes from 2 in. to 8 in. inclusive. Both straight and reducing laterals will be available. The company believes this is the first time a welding lateral is made available to the trade. Exhibit will also include the company's line of welding fittings: 90° elbows, 45° elbows, tees, crosses, lapped-joint stub ends, concentric and eccentric reducers, saddles, sleeves, caps, and forged-steel flanges.

Milburn Company
Detroit, Mich.
28 Oklahoma Building
In attendance
HYATT EBY

A new salt-tablet dispenser made of aluminum, spe-

The DUFF-NORTON CIRCLE JACK
WRENCHES TOOLS UP TIGHT!
BREAKS JOINTS QUICKLY!

Cut down the unwelcome "time-out for changing bits," by using the Duff-Norton Circle Jack for wrenching and unwrenching tools. Built exclusively for severe oil-field service, this powerful, efficient jack assures tight joints every time you set them up—and breaks joints quickly and easily when unwrenching.

Send today for full particulars on this modern aid to faster drilling.

THE DUFF-NORTON MANUFACTURING CO.
PITTSBURGH, PA.
CANADIAN PLANT COATICOOK, QUEBEC
"The House that Jacks Built"

OTHER DUFF-NORTON JACKS

The handy Chain Jack finds hundreds of jobs for its top lift, foot lift, hook lift and chain lift.

Ball Bearing Jack Screws are made in 10 sizes, 5 to 50 tons capacity.

Ball Bearing Jack for extra heavy lifting. Plenty of power with minimum effort. 15 to 100 tons.

cially plated by a special plating process that meets the U. S. Navy anticorrosive specifications, and called

New salt-tablet dispenser

Dispens-Eze is exhibited. After experimenting with types of dispensers, in one of the largest automobile companies, the company reports this was standardized and a thousand installed. The point that influenced the decision in favor of this design of dispenser, with a capacity of more than a thousand 10 or 15-grain tablets, according to the customer, was first of all that this specially plated aluminum casting is impervious to attack from salt. This together with the fact that Dispens-Eze is moistureproof, eliminated one of the most difficult problems in connection with the storing and dispensing of salt-corrosion. Its mechanical simplicity, heavy construction and Yale lock (both safeguards contents and locks it to the wall bracket) reduce the maintenance problem to a minimum, making it tamperproof as it could be damaged only with a heavy sledge or a violent blow from some heavy instrument.

Mine Safety Appliances Co.
Pittsburgh, Pa.
48-49 Oklahoma Building
In attendance

G. J. GRUBER — R. M. NICHOLSON
H. L. PHILLIPS — H. W. RICHARDS
J. T. RYAN, JR.

On display will be a number of new safety products being shown to the oil industry for the first time: new combustible gas alarms, the oxygen recorder, all-vision face-piece gas masks, face shields, the Rheoderm apparatus, welders' ear protectors, and ear defenders.

The company will exhibit also a complete line of its standard products and some of them are hose and gas masks, oxygen-breathing apparatus, skullgards, first-aid equipment, salt-tablet dispensers, the H-H inhalator, Dustfoe and Comfo dust respirators, the Midget impinger for sampling dusts, and gas-detecting and analyzing instruments, such as benzol indicator, hand-operated carbon monoxide indicator and combustible gas indicator.

M.S.A. representatives in attendance will gladly demonstrate the equipment and discuss safety problems.

HEAT & CORROSION RESISTING
BOLTS, NUTS & STUDS

We specialize exclusively in the manufacture of Bolts, Nuts, and Studs of high strength, heat-treated alloy steels, corrosion and heat resistant alloys, non-ferrous metals and carbon steels . . . . for refineries, natural gasoline plants, and manufacturers of refinery and oil field equipment.

VICTOR ALLOY STEEL STUDS

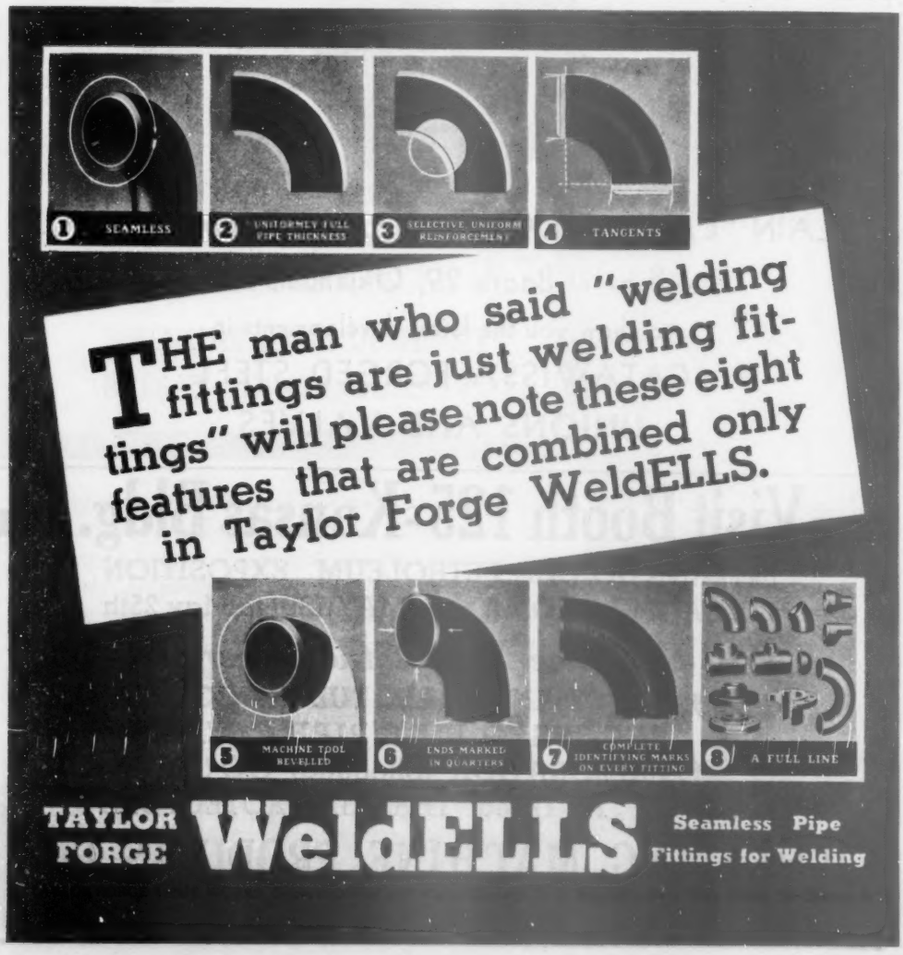
Made to rigid A.S.T.M. specifications to fulfill any size and application requirements for flanged fittings and valves. VICTOR Heat-Treated Alloy Steel Studs are guaranteed for quality and satisfactory service.

Write today for the VICTOR Catalog and Prices. You just can't beat VICTOR quality!

VICTOR PRODUCTS CORP.
8649 Belmont Ave. Chicago, Ill.

BLAIN "Catawissa" LACY and JOHN "Catawissa" HILL
will be at Booth 29, Oklahoma Bldg.
to show you the latest developments in
CATAWISSA FORGED STEEL
UNIONS AND VALVES

Visit Booth 125-Kansas Bldg.
INTERNATIONAL PETROLEUM EXPOSITION
TULSA, OKLAHOMA MAY 18th to May 25th
It Will Convince You of the Superiority of
"XL" UPSET AND PLAIN TUBING COUPLINGS
RECESSED LINE PIPE COUPLINGS
EXPLORATION (Shooting) COUPLINGS
and "XL" All-Thred THREAD PROTECTORS
WHEELING MACHINE PRODUCTS CO.
WHEELING WEST VIRGINIA

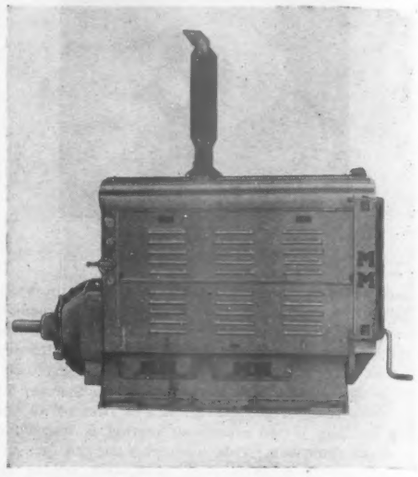

1 SEAMLESS
2 UNIFORMLY FULL PIPE THICKNESS
3 SELECTIVE UNIFORM REINFORCEMENT
4 TANGENTS
THE man who said "welding fittings are just welding fittings" will please note these eight features that are combined only in Taylor Forge WeldELLS.
5 MACHINE TOOL BEVELLED
6 ENDS MARKED IN QUARTERS
7 COMPLETE IDENTIFYING MARKS ON EVERY FITTING
8 A FULL LINE
TAYLOR FORGE
WeldELLS
Seamless Pipe Fittings for Welding

Minneapolis-Moline Power Implement Co.
Minneapolis, Minn.

Outside: East of Scientific and Technical Building

In attendance

D. J. SHRIMPTON — CARL HAMPLE
FRANK VANCE — F. N. LANGHAM
W. D. BARRY — S. O. HALL
A. W. LAVERS — L. E. PETTER
N. R. NESS



Feature attractions this year are two new oil-field power units recently added to the line—the "HU" unit with a 4⅝ by 6-in. six-cylinder engine and the "CU" unit with a 4¼ by 5-in. six-cylinder engine. The "HU" will be displayed as the unit is equipped leaving the factory for the oil fields. The "CU" will be equipped with a 40-kw. generator and will be operating on natural gas to supply the electricity for the exhibit.

Other units in the exhibit will be the "EU" and "RU" units developing 25 and 34 hp. respectively. These units have been completely streamlined and equipped with all features desirable for oil-field operations, and will make their first public appearance with the new enclosure design at the Tulsa Exposition.

The popular "KU" 46-hp. unit and two styles of the famous "GU" 59-hp. unit will be on hand to greet the thousands of friends these engines have made over the oil-producing areas of the world.

The large "NEU" 210-hp., the giant of our line, will complete the display.

Mission Manufacturing Co.
Houston, Tex.

91-92-93-118-119-120 Texas Building

In attendance

WALTER B. SHARP, president
W. T. CAMPBELL, vice president in charge of sales
J. D. BEST, assistant sales manager
E. H. TRAMMELL, manager of export division, New York
J. H. TUCKER and A. O. NELSON, Oklahoma and Kansas
FRED S. PRICE, Wichita Falls

When the company considered entering the valve field, it set up a combination of desirable features to attain: 90° operation (quarter turn); easy turning

through a supersurface grinding job; corrosive-resistant core surface; a cylindrical closure member contacting the case throughout its length along an arc identical to the arc of the case and doing so without the necessity of wedging to get this fit; completely encircling each port with a lubricant seal groove; a reservoir of "spare" lubricant for each port-encircling sealing groove; utilize the force within the valve (line pressure) to automatically force lubricant from the reservoir to the downstream seal groove; make this reservoir system responsive to either port; provide the highest standards of metallurgy, mechanical precision and exacting inspection.

The company believes it has combined these desirable features in its plug valve as abundantly proven by its widespread acceptance and repeat orders, necessitating increased manufacturing facilities.

Other Mission products displayed are the company's fluid-end pistons, slush-pump valves, "Super-Surfaced" piston rods, "File-Hard" piston rods, "Self-Sealing" gland packings, "Rolling Dog" rotary slips, "Rolling Dog" tubing spiders, "Rolling Dog" casing slips, "Valveless" swabs, and casing swabs.

The annual meeting of the company's sales staff with the management will take place in Tulsa on May 15-17, preceding the exposition in the Mission house, especially leased for the duration of the show.

Mixing Equipment Co.
Rochester, N. Y.

119 Kansas Building

In attendance

F. H. GORDON, JR., president
L. R. GORDON, vice president
E. S. BISSELL, general manager and technical director
F. D. MILLER, chief engineer
W. V. C. JACKSON, Kansas and Oklahoma representative
KEN PUFFER, Texas representative
STANLEY WILLIAMS, Texas representative

Engineering consultation service on mixing problems. The rapid strides made by the propeller-type method of mixing and blending motor fuel, lube oil, etc., has raised many questions, and for this reason, the company will have its chief engineer and its technical director on hand.

A unique motion picture in full color showing principles of mixing and many interesting experiments will be featured. Cut-away models on display of all styles of "Lightnin" mixers, including side entering mixers, nozzle mounting tripods, portable mixers, laboratory models, etc., will show exactly how these mixers are built to meet heavy-duty refinery operations. Installation pictures and data will also feature the exhibit.

In the Hall of Science there will be an exhibit of a working-scale model of gasoline-blending equipment operating in a glass tank.

Lee C. Moore & Company, Inc.
Tulsa, Okla.

65 and 66 Oklahoma Building and Block 8

In attendance

E. S. ANDERSON — O. H. DITTMER
G. A. HOLLOWAY — C. R. KRAUSE
W. H. PAYNE — H. J. WOOLSLAYER

Our Booths 65 and 66, Oklahoma Building, will not be used for equipment display, only our usual artistic back drop and miniature derrick, the arrangement will primarily consist of a seating arrangement for rest and entertainment of visitors.

Description of outside exhibits: A 136-ft., 800,000-lb. capacity, A.P.I. drilling derrick; two 87-ft., 300,000-lb. capacity, Cantilever jack knife slim-hole drilling masts with steel bases, and series of our "Red-Head" pumping units.

Moorlane Company, Inc.
Tulsa, Okla.

151-156, inclusive, Oklahoma Building

In attendance

W. D. MOORER — EGON KOEHLER
S. D. HUNT — E. L. HAGAR
J. W. DORMAN — J. R. STAGG

The layout will embody in a composite exhibit the presentation of the Scovill Manufacturing Co., American Car & Foundry Co., Taylor Forge & Pipe Works, Henry Vogt Machine Co., Hanlon-Waters, Inc., and the Goetze

VIKING
FIELD TRANSFER
PUMPS

We would like to introduce you to the complete line of Viking Rotary Pumps for field transfer and refinery service. We are anxious to show how Viking can furnish you, immediately, with a wide selection of capacities in standard and time-saving portable models . . . how Viking is equipped to deliver, in a hurry, special pumps with specified bases and drive arrangements for special pumping assignments.

Take time out now and write for detailed, illustrated Bulletins on Viking Field and Refinery Pumps . . . check through them carefully . . . you'll find they contain the answers to many of your most urgent pumping problems.

Look For This Trade Mark — The Sign Of A Genuine Viking

VIKING PUMP CO.
CEDAR FALLS, IOWA

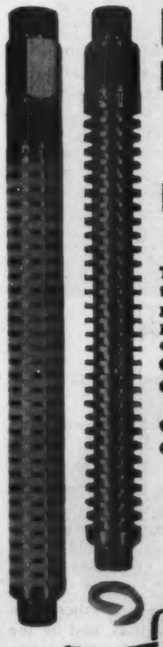
AT THE TULSA OIL SHOW
Be Sure to See
THE NEW
JUSTRITE
Twin-Bulb Electric
SAFETY LANTERNS

APPROVED — U. S. BUREAU OF MINES (Approval 2017)
APPROVED — UNDERWRITERS' LABORATORIES

All Purpose Safety Type — Model No. 51-W

On Display
Booth No. 17, Scientific & Technical Bldg.

JUSTRITE MANUFACTURING CO.
2061 SOUTHPORT AVE. CHICAGO, ILL.



MARTIN PLUNGERS
Fit all Sizes and Types of Rod or Tubing PUMPS

They will give excellent runs in tubes that would have to be replaced in order to use conventional plungers. This is only one of many advantages, including:

- **Longer tube or barrel life.**
- **2 to 10 times greater wear from rings.**
- **Ability to pump any depth well.**
- **Long life of plunger bodies due to rigid one piece construction, less corrosive action, ability to hold rings properly after much abuse.**

Sold only thru supply stores.
Write for Illustrated Literature
See Pg. 1562 Composite Catalog.

THE OPERATION DID ME A WORLD OF GOOD!

Field Representatives:
Tom Hulett, El Dorado, Ark.
C. J. Baston, Eldorado, Kans.
Harvey J. Stone, Wichita Falls, Tex.
Lynn C. Holloway, Houston, Tex.
Claude Wilmeth, Kilgore, Tex.
Oris Orton, Cushing, Okla.

JOHN N. MARTIN
Manufacturer
11 W. Brady St. Tulsa, Okla.

Gasket & Packing Co., in addition to sundry boards and demonstrations. The colors red, white and black will predominate in the tenor of the design. Cut-out block letters are being used for the individual booth designation, and a shadow-box arrangement designed to illuminate "Moorlane" at the top of the exhibit will be easily visible from the aisle.

Moorman Bros.
Rushville, Ind.

87 Kansas Building

Morrison Bros. Co.
Dubuque, Iowa

6 Kansas Building

In attendance

W. W. DAUNER, sales manager

E. A. SCHNEIDER, assistant sales manager

Displaying a portion of the company's line of valves and fittings for the marketing and refining end of the industry.

Motor Improvements, Inc.
Newark, N. J.

17 Oklahoma Building

Nathan Manufacturing Company
New York

25 Kansas Building

In attendance

W. E. WOLLHEIM

Showing complete line of mechanical lubricators, most of them particularly applicable to oil-field power. The lubricators are entirely valveless and extremely simple in construction. In one particular type, the oil reservoir may be remote from the lubricator which comprises a pumping head only, provided with either a ratchet or rotary drive. Sight feeds are placed in the discharge lines, feeding oil through glycerin-filled glass chambers. In other types, the sight feeds are located at the suction side of the pumping unit, the drops being observable in a chamber under a vacuum. Several types of lubricators are shown in actual operation. There is also exhibited a special mechanical lubricator, Type HD, for forcing oil into lines under pressures as high as 20,000 lb. per sq. in.

Fusible plugs, so called "boiler-drop plugs," are displayed for use with high-pressure boilers up to 350 lb. In these plugs, in case of fusing, a clear good-sized opening will become exposed to the dropping of a center button, eliminating common failure on account of too small an opening for the steam to pass through.

There are also shown heavily constructed gages suitable for indicating the contents of oil tanks and the like.

National Carbide Co.
New York

30 Oklahoma Building

National Lead Co.
St. Louis, Mo.

50 Scientific and Technical Building

In attendance

GEORGE S. OWEN, supercial representative

E. S. SIEBER, sales manager, rolling mill

Exhibiting lead pipe for use in the oil refineries and the chemical plants throughout the Mid-Continent field. Will also have the various babbitt metals suitable for use in the oil engines and gas engines, together with the heavy-duty as well as high-speed engines used so widely in the oil fields.

The company will also exhibit some of its other metal specialties, especially sheet lead which is used by the oil-refining industry in agitators and acid-recovery plants. It will have chemical sheet lead made from the best Southeast Missouri lead ore; tellurium chemical sheet lead—one of its latest developments; and reinforced sheet lead, where the antimonial or hard lead bars reinforce the chemical sheet lead similar to reinforced concrete, especially suitable for high temperatures. It also will exhibit lead wool so widely used in drilling for oil, and many other products.

National Petroleum News
Cleveland, Ohio

65-66 Kansas Building

The National Supply Co.
Pittsburgh, Pa.

Block 1

In attendance

J. M. WILSON, chairman of the board

A. E. WALKER, president

D. S. FAULKNER, vice president

A. W. McKINNEY, vice president

J. C. SHOUVLIN, vice president

NAURICE G. CUMMINGS, vice president

M. T. ARCHER, director of research

J. R. MAHAN, chief engineer

D. G. MANN, division manager

R. W. GORDON, division manager

I. G. WETHERILL, division manager

JAMES M. THOMPSON, division tubular manager

M. D. MUNDER, division tubular manager

H. L. PUTNAM, division sales manager

D. F. PAYTE, division sales manager

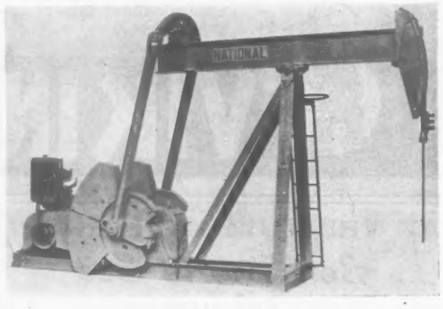
C. A. McCOLLUM, district manager

M. F. CRIBBS, special representative

W. R. RYBURN, special representative

The company's exhibit is one of the most complete displays of new and improved oil-field machinery and equipment in the show. Demonstrations of its field replacement service of shrink thread tool joints, gear cutting on Farrell-Sykes gear generator, surveying of Ideal rotary drill collars, checking tool-joint threads with the Jones and Lamson comparator, fatigue testing of steel with the Moore fatigue testing machine, and operation of American Blower Co. hydraulic coupling are outstanding features of the exhibit.

Ideal and National machinery and equipment on display is as follows:



National Type TU234-JD23TB unit pumper

Pumping equipment.

An arc-welded frame and samson-post construction provides maximum strength and rigidity and less weight in proportion to capacity. The reduction-gear ratio, together with variation in V-belt sheave sizes enables the adaptation of high, medium and slow-speed prime movers. The frame is made with a short base to which extension bases with slide rails for various types of prime movers are bolted, making changes in the field comparatively simple and inexpensive. Changing V-belt sheaves is facilitated by a tapered shaft which includes a locking device and a puller for easy removal. Increased strength and rigidity of the complete assembly is assured by four foundation bolts that go entirely through the frame and engage the reduction gear base. These are in addition to the usual bolts for bolting the reduction gear to the frame.

National Type TU304-HD30TB unit pumper with a Type CM Superior two-cycle convertible gas engine. The pumper is a twin-crank unit for medium pumping service. Its features incorporate: An arc-welded construction provides maximum strength and rigidity and less weight in proportion to capacity. The reduction-gear ratio, together with variation in V-belt sheave sizes, enables the adaptation of high, medium and low-speed prime movers, The frame is made with a short base to which extension bases with slide rails for various types of prime movers are bolted, making changes in the field comparatively simple and inexpensive. Changing V-belt sheaves is facilitated by a tapered shaft which includes a locking device and a puller for easy removal. The entire unit is symmetrical in construction from the arrangement of the balanced gear train to the four-legged samson post; consequently there is no tendency toward misalignment through unequal wear and distortion.

The Type TU70G-JD7T National unit pumper offers a practical installation for those shallower fields where single-well pumping is found desirable. It is of the preferred twin-crank design, and is made to operate for years with little attention or maintenance. Notwithstanding its similarity in general appearance and design to the type of pumpers used on deeper work, it meets the requirements of low first cost in its field of service. This has been accomplished by an economy and simplicity of design through careful analysis of every part, and a compact, integral, all-welded construction which achieves rated capacity with less weight.

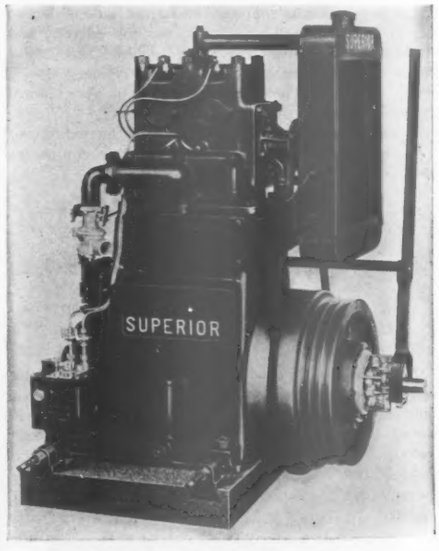
The Type TU20G-JD2T National unit pumper makes single-well pumping in the shallowest fields practical and economical. For these installations where topography is rough, or where it is desirable to vary strokes and duration of pumping as between wells, it is particularly suited. It also offers a means of eliminating long rod lines, and in addition, since it is easily moved and installed, makes an economical temporary lifting unit.

The National Type G-150-B geared pumping power is designed and built for the heaviest requirements of central-power pumping. It is weatherproof, economically installed and adaptable to all types of oil-country prime movers. General design is the same as that of the Type G-30-B, G-50-B, G-75-B, and G-100-B National geared powers.

Superior engines.

The general use of pumping gears and pumping units has been met by Superior Type CM horizontal single-flywheel gas and oil engines with built-in clutch to make a self-contained two-bearing unit for mounting on pumper base or on concrete. By eliminating an outboard bearing and coupled clutch, or stubshaft, the possibility of alignment difficulty is avoided. Removal of V-belt or flat belt is made easy. The saving in foundation, width of building and erection labor reduces cost of installing. The basic engine design incorporates roller main bearings and roller bearing in clutch. Extra-heavy single flywheel at operating side. Built-in water pump optional. Automatic air starting valve on 12½ by 16-in. and larger; optional on smaller sizes. Radiator can be furnished on 10½ by 13-in. and 11 by 14-in. sizes. Convertible oil engine runs on crude.

Superior Type CS convertible gas and oil engines specially arranged to drive a.c. generator, supply current at lowest cost for pumping with motors on the smaller properties. This simple, reliable slow-speed engine is cared for by the pumper and all operating expenses are at a minimum. The oil engine operates on the better grades of crude or on diesel fuel oil. Extra-heavy flywheel and special mixing valve for closer regulation. Skid mounting optional to lessen foundation expense and facilitate moving. Radiator optional on



Superior Type DV vertical two-cycle two-cylinder engine

the four smaller sizes. The V-belt-driven generator, usually at 1,200 r.p.m., can be equipped with built-in instruments and voltage regulator, all wired to generator, to eliminate switchboard and its wiring.

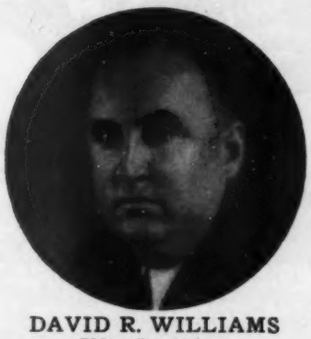
The Superior Type DV engine has a 4-in. bore and 5-in. stroke with a continuous load rating of 10 hp. at 700 r.p.m. Speed range is from 400 to 800 r.p.m. It definitely meets the demand for a low-horsepower engine for single-well pumpers in the shallower fields. This engine combines the simplicity and operating economy of the horizontal slow-speed oil-country gas engines

Greetings!

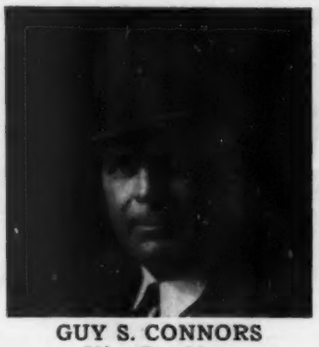
To Our Many Friends and Welcome to the Oil Show

Williams Brothers Corp., for 25 years builders of oil, gas, gasoline and water pipe lines for the petroleum, natural gas, and utility industries of North and South America, extends warmest greetings to its many friends and customers attending the International Petroleum Exposition. We express our sincerest appreciation to those men whose confidence and friendship have enabled us to succeed through the privilege of serving them.

S. M. WILLIAMS, Jr.
President



DAVID R. WILLIAMS
Vice President



GUY S. CONNORS
Vice President

C. A. STANFIELD
Vice President-Treas.

Pipe Line Contractors

Oil—Gas—Gasoline—Water

—o—

Engineering — Contracting

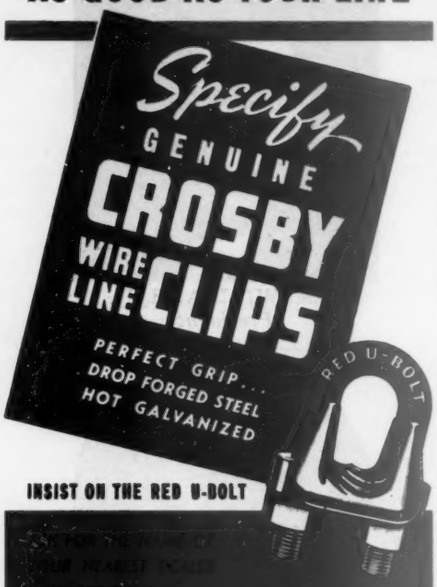
WILLIAMS BROTHERS CORP.

CHICAGO TULSA HOUSTON

MAKE SURE THAT YOUR

WIRE LINE CLIPS ARE

AS GOOD AS YOUR LINE



INSIST ON THE RED U-BOLT

AMERICAN HOIST & DERRICK CO.

CHICAGO ST. PAUL, MINN. NEW YORK

ESPECIALLY RECOMMENDED FOR USE IN THE

COPPER SWEETENING PROCESS

Nichols

TRIANGLE BRAND

COPPER SULPHATE

is preferred by leading refineries because of its high copper content, dependable uniformity and exceptional purity and freedom from foreign and inert matter.

99% PURE

Quotation on request, on any quantity required. Prompt shipments can be made from our nearest plant.

PHELPS DODGE REFINING CORP.

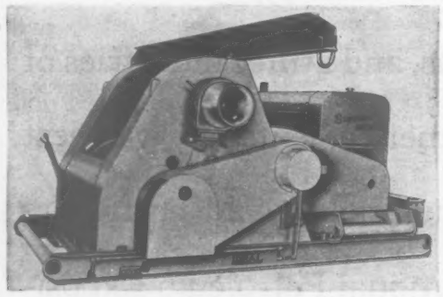
40 WALL STREET, NEW YORK

230 N. MICH. AVE., CHICAGO

and the compactness and mobility of the higher-speed multicylinder types. It is a self-contained unit complete with radiator and power takeoff with practically the same installation cost and space requirements as a higher-speed engine of equal power. Among other features of design the crosshead-type construction reduces lubrication expense because the crankcase oil does not contact the hot piston, and is not contaminated by carbon from piston and rings. Cylinder and piston wear are minimized because the side thrust of connecting rod is carried by the crosshead. Double-row Timken roller main bearings contribute to easy starting. The heavy flywheel and special mixing valve insure smooth power and uniform torque.

Superior Type ORD-6 diesel engine is one of the most recent additions to the Superior line. It is of the conventional medium-speed four-cycle solid-injection diesel type. In developing this engine Superior has produced an engine designed particularly for drilling service. The design incorporates many new features, based on actual experience with Superior engines in drilling service. Type ORD is convertible to operate on gas fuel.

Superior Type ID-8 diesel drilling engine unit is a ruggedly built, easily portable unit for rotary and cable-tool drilling service. The Type ID is of the medium-speed four-cycle solid-injection full-diesel type and is built in six and eight-cylinder models. Engine may be equipped with either electric or gasoline engine starting.



Ideal consolidated draw works Type 40

Drilling equipment.

The Ideal consolidated draw works comprises a draw works with engine and four-speed transmission, all mounted as a portable unit. It is rated for drilling to a depth of 4,000 ft. using 4½-in. drill pipe. Many outstanding features that have been specially designed for simplicity and ease of operation will be found on this unit, and will meet with the instant approval of operators:

Portability combined with ruggedness. Quickness in rigging up. Special heavy-duty constant-mesh transmission, providing four hoisting speeds and four rotary speeds. Master friction clutch providing control over all operations. Complete guard system, presenting smooth exterior and minimizing collection of dirt. Easily accessible lubrication fittings and brake adjustment. Balance drum assembly with 16 by 44-in. drum. Spray water-cooling system for the 42 by 8⅝-in. steel brake rims. Catheads easily removed from tapered ends of cat shaft. Complete with roller chain and tie-down beam. Optional sand reel.

Ideal Ajax 14 by 14 Type B roller-bearing steam drilling engines incorporate the following outstanding features:

The cylinders are provided with removable liners. The liners are made of close-grained, centrifugally cast, long-wearing alloy iron and are pressed into the cylinder, after which they are securely locked in place. Should it ever be necessary to replace a liner, the work can be done in the field, easily and quickly. Cylinder lubrication is greatly improved by equipping the steam manifold with coil-type atomizers. These condensing coil-type atomizers emulsify the oil to a fog form before the lubricant is released into the steam flow.

The Ideal HS-20½ rotary machine has been accepted as an outstanding step in the development of rotary machines. Designed in anticipation of deeper drilling, this rotary provides many features developed from years of rotary manufacture and field research that have enabled National to offer a machine for all deep drilling requirements. Construction in line with the tendency of modern drilling practice toward higher rotating speeds, the HS-20½ rotary is a heavy-duty unit with which unusual flexibility of operation is obtainable.

The National Supply Co. offers the Ideal 88-in. traveling block with independently mounted sheaves. It has five 48-in. roller-bearing manganese-steel sheaves and a rated load capacity of 300 tons. This block has been especially designed with each sheave held in a fixed lateral position on the center pin, and is the recognized block for extreme drilling requirements and high-speed operations in the many deep fields.

The Type M is one of a complete line of modern Ideal swivels in sizes to meet all drilling requirements and offering the utmost in swivel performance now available to the trade. Proven in oil fields throughout the world and the unqualified acceptance of all operators, these swivels offer an efficient design developed from years of experience in swivel manufacture. Distinctive National features contribute to their extraordinary performance. Of similar design and construction, each of these swivels has been carefully engineered to provide the most satisfactory service within its particular drilling range.

The majority of drilling-string failures have been caused by misalignment in some part of the string. The Ideal Alignascope was developed to provide a means of keeping an accurate check on the straightness of the drill pipe, stem, joints and collars, thus making this instrument of inestimable value to the operator by helping to prevent costly failures due to misalignment of these parts. With Alignascope the regular drilling crew can quickly survey sections of the drilling string while suspended in the derrick—either when running into the hole or coming out. They can check the straightness of each stand as a whole, also the individual lengths of pipe and individual joints.

The Ideal Type C-250 power-driven slush pump meets today's requirements of faster drilling and higher pressures. The horsepower rating of the power end and the pressure rating of the fluid end make it capable of the same performance as the corresponding Ideal steam slush pumps.

In addition to the above machinery and equipment, National will announce and have on display many new products. Among the new items will be the Type TUS694-HD80T unit pumper, Type E-160 pumping jack, Ideal Type SD auxiliary rotary drive, Ideal Type 75 consolidated rig.

National Tank Co.

Tulsa, Okla.

96-97-98-113-114-115 Texas Building

In attendance

JAY P. WALKER	CECIL G. WELLS
GUY O. MARCHANT	J. E. RICHARD
L. S. ALLEN	C. O. GLASGOW
C. D. LAIDLEY	S. S. PARKER
FLOYD L. SENTER	C. W. IMMEL
ED M. FONTAINE	W. A. TODD
MERLE W. BRYAN	L. E. MURRAY
C. G. SHROPSHIRE	WARD E. GUIN
ROGER LA PLANTE	R. W. ERWIN

Two types of distillate-recovery plants in miniature form will be on display. This will include a "field" distillate plant designed to handle up to 20,000,000 cu. ft. of high-pressure gas per day. It will illustrate precooling before separating, multistage separation, and hydrate control. It shows how the well flow is handled from entrance into the system to injection back into underground formation. These models are scale models of one-twelfth original dimensions.

Also shown in a complete arrangement is a one-twelfth scale model of a central distillate-recovery plant, designed to handle 40,000,000 cu. ft. of gas per day, carrying the well fluids through the complete process. This display will reveal all equipment, hook-up, and by various colored pipe lines the course of the fluids.

A complete system for crude-oil emulsion treating and salt-water disposal will be shown in the form of scale models one-fourth of regular size. It will include a model automatic treating unit constructed of transparent plastics to permit observation of the various features of oil and gas separation, free water removal, emulsion treating and after-cooling of the clean oil.

On display will be a table of one-fourth scale models of a wood tank battery and cutaway models of an emulsion heater and an indirect emulsion heater, designed for handling highly corrosive emulsions.

A full-size separator with the shell made of transparent plastics will show the complete operation and will be equipped with new devices.

A full-scale, 2,000-lb. working pressure separator will be shown with an entirely new liquid-level control. A standard working pressure (125 lb.) separator will be

equipped with a dual-control mechanism of pilot operation. The latest sizes of Armco casing will be displayed.

National Tube Company
Pittsburgh, Pa.
138-142 Oklahoma Building
In attendance

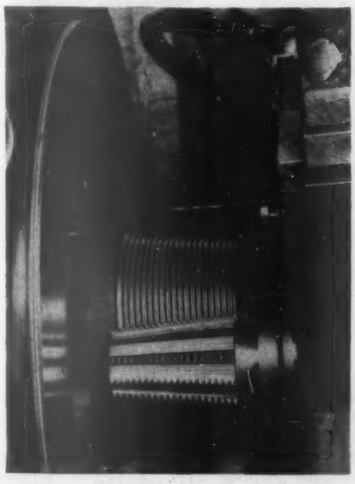
B. F. HARRIS	J. E. GOBLE
W. F. McCONNOR	J. B. GRAHAM
E. E. SMITH	F. R. BRAMAN
H. J. MORLANG	A. C. TEMMEL
A. L. ZOLL	F. A. MARSH
W. C. MOSER	H. L. DANA
P. F. HOUSERMAN	E. H. PELSTER
ROBERT YOUNG	P. G. CHAMBERS
WALTER GRAHAM	

Exhibit includes a backwall which vividly displays our slogan, "Walls Without Welds," to promote the seamless process of making oil-country products. In the center of the backwall is shown a large section of seamless pipe, with eight outstanding advantages listed in lighted arrows. On display are samples of the latest developments in casing and tubing, together with drill pipe fitted with new and regular design tool joints.

National Twist Drill & Tool Co.
Detroit, Mich.
and
Winter Brothers Co.
Wrentham, Mass.
15-16 Kansas Building
In attendance

V. W. WHEELER, assistant sales manager
J. J. BALL, sales engineer
ROBERT BALLIET, southwestern representative

These two companies will display their products in cooperation with Gates Hardware Co., Tulsa distributor, covering their complete lines of twist drills, reamers,



milling cutters, hobs, counterbores, taps, dies, screw plates, and a variety of special tools in these classifications. Metal-cutting tools, such as these, are used extensive by the oil-tool manufacturers, the pipe and fittings manufacturers and by operators in the field. Of special interest will be a display of threading tools for pipe and oil-tool joints.

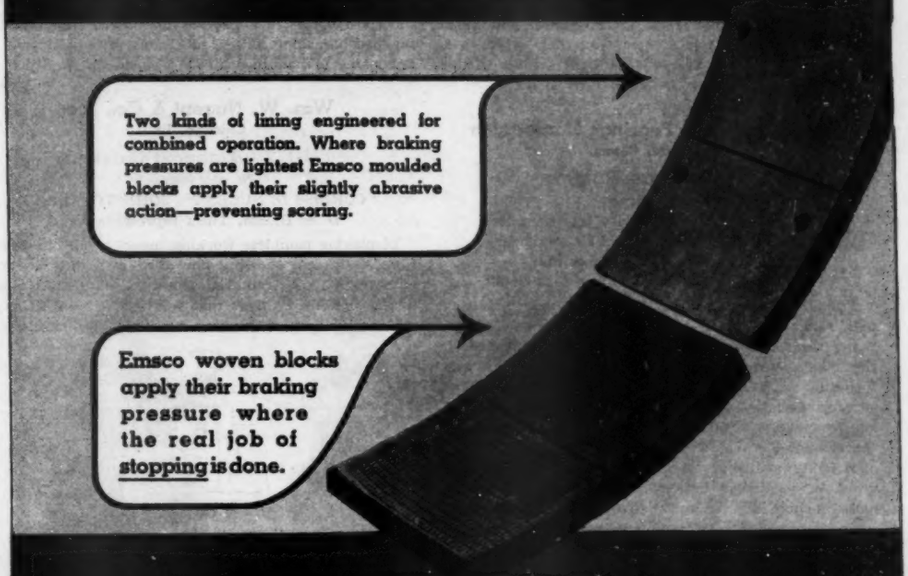
Nelson Electric Co.
Tulsa, Okla.
83 Kansas Building

New Departure
Bristol, Conn.
52 and 53 Kansas Building
In attendance

F. W. MARSCHNER, western sales manager, Detroit
FRANK J. MILLER, manager, Chicago
O. E. HIGHLAND and L. A. HILLMAN, Chicago

Mr. Hillman will be in active charge.

READY
FOR QUICK, SIMPLE
INSTALLATION


Two kinds of lining engineered for combined operation. Where braking pressures are lightest Emsco moulded blocks apply their slightly abrasive action—preventing scoring.
Emsco woven blocks apply their braking pressure where the real job of stopping is done.

. . . AND READY for the softest, safest action that ever stopped a brake drum

Emsco owns U. S. LETTERS PATENT No. 2033968 which fully covers the combination (any two types of lining in one brake) or Engineered Principle in brake lining application. Thus, in Emsco Engineered Sets, exclusively, the positive holding qualities of woven lining are combined with the non-scoring qualities of moulded lining to produce the finest brake for any drawworks. Cut, drilled and packed (one band per box) ready to install.

EMSCO Engineered
ROTARY BRAKE BLOCKS

Nixdorff-Krein Manufacturing Co.

St. Louis, Mo.

17 Kansas Building

In attendance

W. E. DORMAN, sales manager
BEN SANDER — FOREST EYER
CASH DEAN — HARRY D. WHITLEY
GORDON K. MORGAN

Truck tire chains especially designed for the mud and muck of the oil fields will be exhibited. These double-ring truck tire chains are of patented double-ring construction, used in place of the usual links. The rings, it is said, give added traction in mud, and because they revolve slowly when in use, are self-cleaning and give longer life. On the other hand, when the truck is riding over pavement the rings lie perfectly flat, making these chains extremely easy riding. A patented side-chain fastener is also used, which although far stronger, is much easier to open or close. The manufacturers state that these side-chain fasteners cannot freeze up, no matter how much mud and grime gets into them, and their strength is such that they can scarcely be bent with a sledge hammer.

Norma-Hoffmann Bearings Corporation

Stamford, Conn.

7 and 8 Texas Building

In attendance

D. E. CHRISTOPHER, sales representative
T. E. ROUNDS, assistant chief engineer
D. W. ROBINSON, sales representative
W. D. ANDERSON, engineering department

Exhibiting representative samples of their precision ball, roller and thrust bearings, of particular interest being the fact that this company is now engaged in the manufacture of antifriction bearings up to and including 22½-in. bore. Such large bearings have a very definite adaptability to heavy-duty oil-field equipment of various types. Also will be exhibited the smaller sizes of ball and roller bearings, the former being available in various sealed and shielded types, of particular interest being the cartridge-type ball bearings as generally advertised. These totally enclosed bearings with removable seals are particularly adaptable for a wide range of temperature conditions and a wide variety of usage where simplicity in mounting is of value. Also will be exhibited instrument-type bearings such as are adapted to seismograph prospecting equipment, these bearings being made in sizes down to ⅛-in. bore, equipped with ball retainers for maximum sensitive action. These bearings are the smallest manufactured in this country on a production basis for high quality precision instrument work.

W. C. Norris, Manufacturer, Inc.

Tulsa, Okla.

Lot X, W. C. Norris, Manufacturer, Inc., Building

In attendance

W. C. NORRIS — D. S. BOWERS
J. H. EUSTICE — E. D. FORQUER
R. A. COLGIN — O. R. KINNAMAN
H. V. FLEMMING — EVERETT RAY
G. W. DAVIDSON — A. W. BRANSCUM
HENRY H. PARIS — RAY SEXTON
WILLIAM R. BARNEY — E. B. WILSON
C. H. BENEDUM — C. O. JONES
J. E. GILES — E. A. TAGGART
P. J. DONNELLY — A. G. THOMPSON

No. 405-407-408 underpull jacks

Products displayed: Swaged nipples and bull plugs with the new "Norrisized" corrosion-protective treatment. "Nortex" polished rods, "Blue Ribbon" working barrels, stuffing boxes, casing heads, braden heads, "Super Strong" pull rods and sucker rods.

The latest design of the company's heavy-duty quality pumping equipment consisting of underpull pump jacks, stroke posts, rod-line swings, and other surface equipment will be shown in operation.

New products: Type "L" swing is available in two types, the regular conventional rigid type and the adjustable type. The two-arm adjustable 30° to 90°. The three-arm adjustable 100° to 160°. Both having a rod-line load capacity of 8,000 lb.

The manufacturer is now offering three new sizes of underpull pumping jacks, increasing their line of this product to a range of 10 sizes capable of pumping wells with individual polished-rod loads of 2,500 to 20,000 lb.

The Type "L" adjustable stroke post was developed primarily for the lighter wells being brought in throughout the Illinois district. It is rated to handle rod-line loads up to 8,000 lb.

The Type "S" structural knockoff was designed to incorporate the advantageous features of the inverted notched bar along with a fabricated structural post. It is capable of handling a rod-line load up to 20,000 lb.

Wm. W. Nugent & Co., Inc.

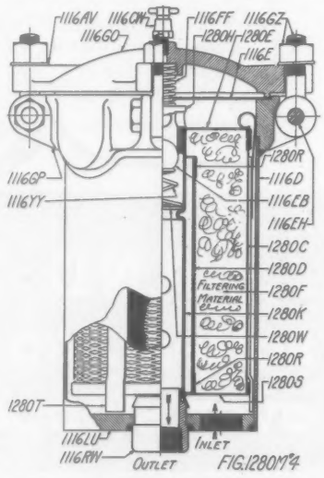
Chicago, Ill.

171-172 Oklahoma Building

In attendance

CORLISS D. NUGENT — JOHN VOCELKA
D. S. DEEM, Tulsa representative

Displaying complete working model of an oiling and filtering system showing how dirt, grit, dust, carbon, etc., are actually removed from the oil before going to the sight-feed valves that will feed the oil through telescopic oilers to moving bearings like crank and



Sectional view of new absorbent type (waste) fuel or lubricating oil filter

crosshead pins. Glass tubing is used for displaying the difference between the dirty and filtered oil.

Will also display one of the largest oil filters ever constructed in one unit. Its maximum capacity on kerosene or fuel oil is 407 g.p.m. at 8 lb. pressure drop through the filter. It will remove articles as small as 0.0003 in. from the oil. It is 43 in. high and 18½ in. in diameter, having 3-in. pipe size inlet and outlet.

Norton Co.

Worcester, Mass.

185-186 Oklahoma Building

In attendance

R. M. JOHNSON, western sales manager
W. E. SHUMWAY, Chicago district manager
F. L. ANDERSON — A. F. HUGE
I. W. STANTON

Showing all types of grinding wheels and abrasive products, it will feature especially those used in the petroleum industry. On six separate moving platforms, for example, will be shown the sizes and types of grinding wheels used in the bit shop, in the machine shop, in the tool room, for cutting-off operations, and for grinding cemented carbides. Another platform will feature the five different abrasives used in the company's products: Alundum abrasive, 38 Alundum abrasive, Crystolon abrasive, Norbide abrasive (hardest substance made by man for commercial use) and diamond abrasive. Still another platform will show the company's porous tubes for filtering, Alun-

dum extraction thimbles for oil testing and other articles in its line of laboratory ware.

Oakite Products, Inc.

New York

10-11 California Building

In attendance

H. L. GRAY, M. E.
GEORGE SEIB, New York
J. C. LEONARD, Chicago and southwestern division manager
J. R. WHYTE, Tulsa and Oklahoma City representative
W. G. MOREHEAD, Dallas representative
WILLIAM A. DOWEN, Houston representative

By means of an illuminated mechanical panel display, the company will present new and improved cleaning materials, methods and equipment designed

Oakite interior tank-cleaning unit, Model 324, supported on crane ready to be inserted in dome of car

for effectively and safely handling a wide variety of maintenance cleaning work in various divisions of the industry. Among the operations featured are cleaning oil coolers, preheaters and similar heat-exchanger equipment without dismantling; safely removing lime scale and rust deposits from diesel and gasoline engine cooling systems; stripping paint from storage tanks, tank cars and trucks without fire or silicosis hazards; salvaging dirty valves, fittings, fishing tools, well pumps, etc., and washing drums.

Also on display will be two recent developments in cleaning equipment of particular interest to producing and refining executives. One is the solution-lifting steam gun, especially suitable for cleaning taken-down equipment before repair, inspection and reassembly. The other is the tank-cleaning unit, Model 324 (patented), an automatic motor-operated machine which makes possible the cleaning of tank-car interiors, in average condition, in from 1 to 2 hours. It is designed to eliminate the fire hazard from sparks.

On exhibit in the Hall of Science will be a miniature cutaway model of a storage tank illustrating the stripping of paint from exterior surfaces by the patented hot flow-on method and cleaning interior surfaces.

Walter O'Bannon Co.

Tulsa, Okla.

104-105 Texas Building

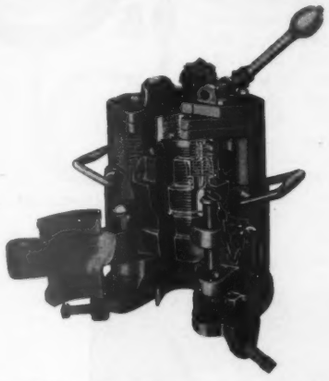
In attendance

WALTER O'BANNON, president
WALTER O'BANNON, JR., vice president
BLAKE CALDWELL, engineer

O. L. BAKER	E. B. BEARD
RALPH L. BOLTE	L. H. BOWEN
NICK CARTER	W. H. DAVIS
E. W. FRANKLIN	R. L. HODSHIRE
F. H. KRUG	H. D. SMITH

A. O. THRASHER

Features of display include a new pump not yet given a name. It is a 1-in. displacement pump designed especially for small, but difficult, pumping



wells in addition to wells having low allowables. Its novel construction advantages will result in its being able to withstand severe sand erosion.

A special demonstration has been built for the company's automatic safety tubing spider, in which operation under closely approximated field conditions will be shown. This will demonstrate clearly its automatic operation and bring out its exclusive safety advantages.

Also bound to attract the attention of the show's visitors will be the two model pumps actually pumping oil, demonstrating the differences in operation between stationary barrel-rod pumps and traveling barrel-rod pumps. All other O'Bannon products will be on exhibit for demonstration and explanation by representatives.

The Ohio Injector Company

Wadsworth, Ohio

227 and 228 Oklahoma Building

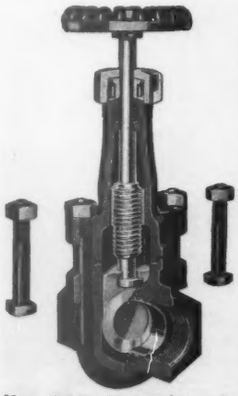
In attendance

P. M. ARNALL, vice president of sales
H. G. DOSTER, vice president, engineering

GRANT LAMONT	E. G. BLAYLOCK

Showing a complete line of standard, medium and high-pressure valves of quality.

Featuring the electrically animated exhibit is a display of the new O.I.C. "Duo-Bolt" gate valves in a complete range of sizes. The "Duo-Bolt" valve is an exclusive O.I.C. product, being so designed as to take either the conventional "U" bolt or standard stock bolts, with the "U" bolt quickly replaceable with standard stock bolts. According to P. M. Arnall, vice president, it means lower replacement and maintenance costs, and lower parts inventory. The valve, he reports, is meeting with eager acceptance in the petroleum, industrial, chemical processing and other fields.



New O.I.C. "Duo-Bolt" gate valve with "U" bolt quickly replaceable with standard stock bolts.

In addition to the "Duo-Bolt" feature, the new valve features a special and extra large drain duct to allow fluids to flow rapidly back into the body when piping operations are discontinued. It also has a self-seating type horseshoe shaped slip-on wedge of standard taper. The wedge comes in malleable iron on iron valves with minimum tensile of 40,000 lb. per sq. in., and in high grade steam bronze, A.S.T.M.-B-61, on the bronze mounted valves.

Ohio Oil Co.

Findlay, Ohio

33-34 Kansas Building

In attendance

O. D. DONNELL	C. S. SHERK

W. W. FLEMING

A display featuring Marathon motor oil and other products of the company will be constructed to form the background of the exhibit. As usual, the Marathon booth will be equipped with comfortable chairs and other facilities which will lend to the comfort and convenience of visitors and those in attendance.

Oil Center Tool Co.

Houston, Tex.

38 Kansas Building

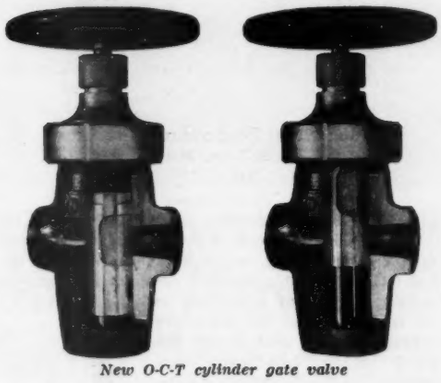
In attendance

A. J. PENICK	H. V. START
B. V. FISHER	WALTER BURKE
JIM HILLMAN	CARL MOUNT

JACK EDWARDS

Products displayed.—Cylinder gate valves, blowout preventers, casing heads, tubing heads, high-pressure fittings, adjustable chokes, quick-change chokes, and assembled and tested christmas trees.

Closed *Open*



New O-C-T cylinder gate valve

The highlight will be the new double-seal cylinder gate valve shown above in both closed and open positions. Briefly, the cylindrical gate travels in the round bore of the valve body. A tapered sealing segment is inset in one side of the gate piston, and a taper is machined on the back side of this segment to mate with the taper on two wedge pins attached to the bottom of the valve body. Upon closing the gate, the tapered side of the pins contacts the taper on the sealing segment at its center point, resulting in an outward thrust in two directions; i.e., against the sealing segment in one direction and against the gate piston in the opposite direction.

A flow way, or conduit, is drilled through the lower part of the valve piston which is raised opposite the flow outlets upon opening the valve. The design is intended to eliminate the possibility of sand or other foreign matter accumulating in the valve body.

Moving parts of the valve are lubricated each time it is opened or closed.

The entire valve is made of alloy steels.

O. C. S. Manufacturing Co.

Coffeyville, Kans.

Block 8

Display at the corner of Mid-Continent and Oklahoma Drive, two pumping units operating with electric motors. They are unique in general appearance because of the new type of guard rails which the company is featuring and which are called "ear muffs." It also has on exhibit a mammoth 100-hp. double-reduction pumper reducer, as well as a miniature size 5-hp. pumper reducer, displaying by contrast the largest and smallest machines of this type manufactured by the company. A working barrel model in miniature is also on display.

At the International Harvester Co.'s exhibit the O. C. S. Manufacturing Co. is featuring a new type of service winch, which it has recently put on the market.

The Oil and Gas Journal

Tulsa, Okla.

Block 5

In attendance

P. C. LAUINGER, president

Editorial:

C. O. WILLSON, editor
W. T. ANDERSON, managing editor
JAMES McINTYRE, consulting editor
W. T. ZIEGENHAIN, refinery editor
W. L. NELSON, technical editor
Associate editors: T. F. SMILEY, T. P. SANDERS, DAL DALRYMPLE, PAUL REED, HARRY F. SIMONS, LYNN M. NICHOLS, W. V. HOWARD, Ph.D.

Advertising:

E. KLAPPENBACH, vice president
LLOYD CAIN, New York
HOWARD MARKT, Cleveland, Ohio
C. R. FARMER, Chicago
KENNETH J. LANGLEY, Tulsa, Okla.
WAYNE RIVES, Houston, Tex.
J. HOWARD TINKHAM, Los Angeles, Calif.

—

S. H. ROURKE, business manager
M. L. DURHAM, circulation manager

Oil Well Improvements Co.

Tulsa, Okla.

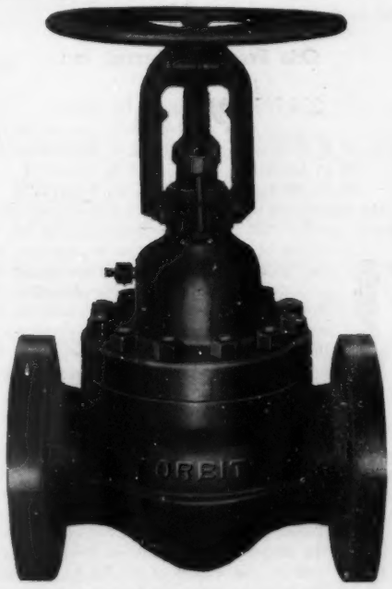
33-34-35 Texas Building

In attendance

ALF G. HEGGEM	ED D. LIGON
DON W. BLEVANS	ROY ACE ELLIOTT
J. DOC MUMFORD	W. O. LIGON

FRED S. DEWEL

Showing a complete line of Orbit valves for the production and transportation of oil and gas, in test pressures from 800 to 10,000 lb. per sq. in. New developments in both the drilling valves and the flow-line valves will be shown. In addition to the Orbit valves, the new types of control casing heads and roller oil savers will be shown, with particular emphasis on equipment for the drilling and completion of gas wells under pressure with cable tools.



Orbit flow-line valve

Oklahoma Rig & Supply Co.

Muskogee, Okla.

4 Oklahoma Building

In attendance

S. D. SLAUGHTER

Showing a complete line of hickory handles and gage poles, Barrett jack, peavie, cant hooks, Myers pump, lug hook, sledge and spike maul, single and double bit axe, picks and mattocks, adze and post mauls, ball pein hammer, adze eye hammer, Boy Scout hatchet, rig builders' hatchet, box hatchets; wire-bound

boxes; wooden boxes; gage rods; cants, arms and handles for standard rig; bull-wheel complete; tug-side bull wheels; brake side of bull wheel; 10-ft. band wheel; 7-ft. tug pulley on band wheel; calf wheel; wood fillers

Adze eye hammer

for steel wheels; wood bull-wheel spooling flanges with or without steel plate; pipe jacks and boards; safety knock-off block; pull-rod carriers; dry hole plugs, common, male and female.

Rig builders' hatchet handle

Oil Well Supply Co.

Block 2, Drake Drive

Dallas, Tex.

Exhibit will consist of extensive and diversified displays of new and improved machinery and equipment for drilling and producing oil wells.

In attendance will be district sales managers, field engineers, and sales representatives.

Oklahoma Steel Castings Company

Tulsa, Okla.

47-48 Texas Building

In attendance

BURTNER FLEEGER — CLYDE WYMAN
ERNEST M. NEWLAND — L. C. BASTON
W. C. HACKBARTH — ANTON JOHNSON
SIDNEY J. MOORE

Exhibit will consist of an especially erected background and pedestals, upon which will be placed castings representative of the work that the company does at the foundry.

Otis Pressure Control, Inc.

Dallas, Tex.

224-225 Oklahoma Building

In attendance

H. C. OTIS — J. C. LUCCOUS
H. C. LAIRD — J. O. FARMER
D. M. MEABON — L. M. WILHOIT

The company's wire-line paraffin scraper will be on display for the first time. The scraper is run into the tubing of a flowing well under pressure on a steel wire line and utilizes flow energy and velocity in removing paraffin deposits. Possibility of the scraper being blown up the hole while being run against flow is eliminated by the company's safety lock. The safety lock has a set of slips held in constant engagement with the tubing walls and will allow the scraper to move down but will bite into the tubing and lock the scraper against any upward movement. The scraper can be furnished with the rotating-type cutter as illustrated or with a jar-down type circular cutter. The rotating cutter is rotated by well flow and actually drills the paraffin out of the tubing. The circular cutter is driven down by a stem through the action of stroke jars. Regardless of which type cutter is used, flow carries the loosened paraffin out of the well. Well flow also scours the tubing and helps loosen the paraffin. Both type cutters have been used successfully.

It is common practice to clean paraffin from four to five wells in one day with the Otis wire-line paraffin scraper.

Also exhibited will be the company's removable bottom-hole regulator, which, it is stated, adds surface-controlled rate of production to the advantages of bottom-hole choking; reduces highest tubing flowing pressures to safe working limits; positively eliminates freezing of surface controls, and a more recent innovation in the form of a new-type valve enables pumping down through the regulator, if it becomes necessary to kill the well while it is in the tubing.

Since its introduction last August, the removable bottom-hole regulator is reported to have been installed and successfully used in 53 producing fields.

Ozalid Corp.

Johnson City, N. Y.

31 Scientific and Technical Building

In attendance

HOWARD S. SUTTON, manager of branches
THOMAS L. PINKNEY, southwestern representative

Showing the company's new Model F fast printing Whiteprint machine for the first time.

Also featuring the Model D office-type Whiteprint machine.

The Patent Scaffolding Co., Inc.

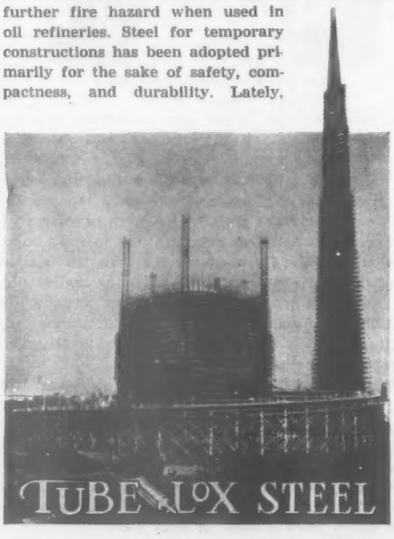
St. Louis, Mo.

Block V

In attendance

WYATT A. FENTON — M. W. DIETZ

Displaying a new form of scaffold known as "Tubelox" steel scaffolding, which is rapidly replacing the old form of wood scaffolding, thus eliminating one further fire hazard when used in oil refineries. Steel for temporary constructions has been adopted primarily for the sake of safety, compactness, and durability. Lately,



however, its adaptability to varying conditions has come to be recognized and appreciated more than ever before, as is clearly illustrated in the accompanying photograph showing "Tubelox" steel scaffolding erected for the construction of the Theme Center at the New York World's Fair.

"Tubelox" with all of these commendable qualities, not to mention its foolproof features, flexibility, and ease of erection, recommends itself to the consideration of all who use the built-up form of scaffolding for new construction and repairs.

The Palmer Company

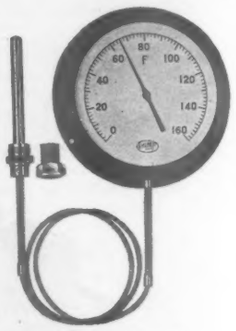
Cincinnati, Ohio

60-61 Scientific and Technical Building

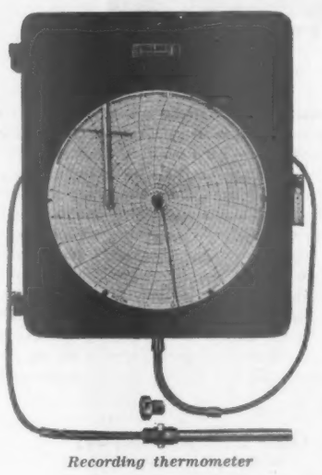
In attendance

BARTLETT PALMER, sales manager
CARL GAST, St. Louis district
FRANK ESCH, Houston, Tex., district
RAY RIDDLE, Tulsa district
ROY TIGHE, Tulsa district
WILLIAM DALEY, factory representative who will demonstrate thermometer making with actual demonstration showing "how thermometer tubes are made"

The "Recording" thermometer, the company says, is one of the finest mercury-actuated recording thermometers ever produced. Twelve-inch case with all parts nonrusting and built sturdily for long wear. Each part designed for easy working and maximum strength. The pen is stainless steel and easy filling. The door catch is unique and patent pending. The instrument records very accurate temperatures and is extremely sensitive. Has been under test for many months and has not been put on the market until perfected in every way. The "Dial" thermometer is a very superior instrument, 8-in. case with easy-reading scale. Built strong and sturdy and has been made to be very sensitive and quick reading. Each working part has been designed to operate freely and to give satisfactory service for many years. Being mercury-actuated, it will give very accurate temperature readings. Can be seen at a great distance. The company has made industrial and laboratory thermometers for many years.



Dial thermometer



Recording thermometer

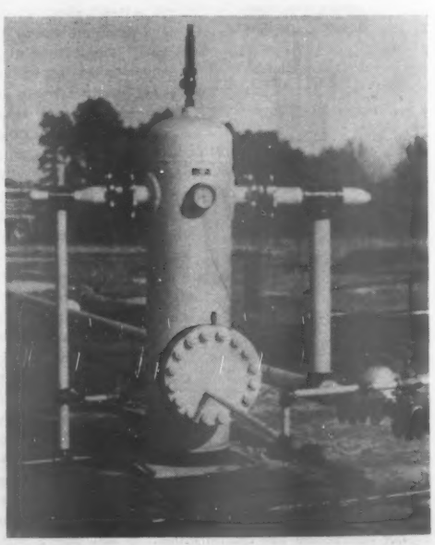
Peerless Manufacturing Co.

Dallas, Tex.

124 Kansas Building

In attendance

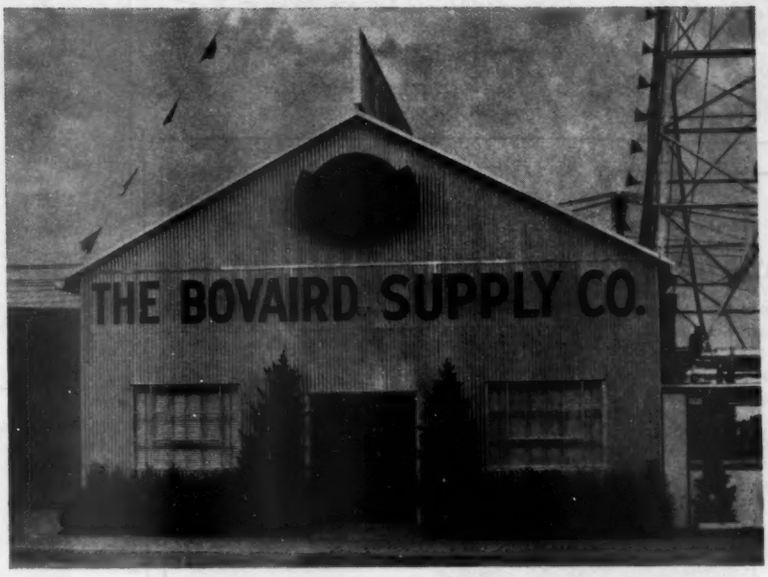
E. W. SMITH



Exhibiting line separators, distillate well separators,

The Center of Things on Drake Drive!

SUPPLY BOVAIRD COMPANY



Our exhibit is housed in our own Building on Drake Drive.

These New Products Never Before Shown at The International Petroleum Exposition

- EMSCO ALL STEEL POWER SLUSH PUMP*
- EMSCO PUMPING UNITS*
- VEELOS 'V' BELT*

(Only adjustable link 'V' Belt. Every link a master link. Adaptable to any drive of any size.

- DEMPSTER SPECIAL SALT WATER DISPOSAL CENTRIFUGAL PUMPS*
- GRIZZLY ROTARY HOSE

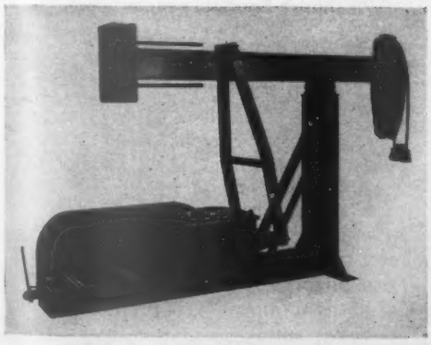
(With new Pressure Seal Couplings).

- WILLIAMS CONTROL PUMPING CHOKE

(Maintains the bottom hole pressure on the pay zone).

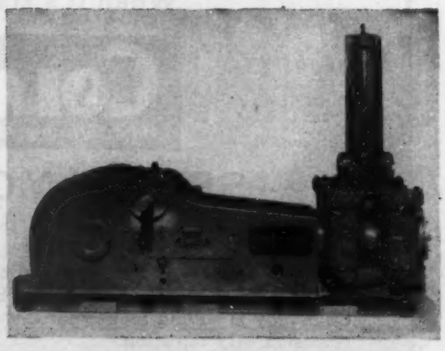
- "CATERPILLAR" DIESEL ELECTRIC SET

*This equipment will be in operation in our building. Other products distributed by Bovaird will also be exhibited.



EMSCO D-38-TP UNIT PUMPER
Designed for use on light wells where a low priced, yet dependable, single well unit is required.

DEMPSTER SPECIAL SALT WATER DISPOSAL CENTRIFUGAL PUMP
Particularly suitable for salt water pumping, drainage, or other purpose involving corrosive or sediment carrying waters.



EMSCO POWER SLUSH PUMP
Sizes: 7¼ x 12 and 7¾ x 16. Less weight. More horsepower capacity. All steel fluid ends, complete circulating oil bath and many other features.

"BUY FROM BOVAIRD"

THE BOVAIRD SUPPLY CO.

General Offices: Tulsa, Oklahoma

showing the Peerless mist extractor, and the positive, intermittent action, weight-operated valve used in all high-pressure separators, as well as the Peerless Type M (meter operated) odorizer for natural gas.

C. F. Pease Co.
Chicago, Ill.
81-82 Scientific and Technical Building

The company states it gave to industry the first continuous machine for printing, washing, developing and drying blueprints. The first of a new line—Model 22—won a first award in a national design contest sponsored by Electrical Manufacturing Magazine. Model 22 produces flat, A number 1 prints at speeds up to 24 ft. per minute—tops for reproduction work. Subsequently, Model 12 appeared—patterned after Model 22, and making virtually the same quality prints at 10 ft. per minute. Now, at Tulsa, Model 16, the latest of the prize-winning line, will be introduced for the first time. Model 16 fits right in between Model 22 and Model 12. It makes flat, contrasty blueprints at 15 ft. per minute, negatives at proportionate speed—fast enough for high production requirements. Moreover, most of the notable features of Model 22 are built into Model 16, yet moderately priced.

Petroleum Electric Power Club
Oklahoma City, Okla.
116-117 Oklahoma Building

Phillips Petroleum Co.
Bartlesville, Okla.
43-44-61-62 Kansas Building

In attendance

H. R. CUNNINGHAM, sales department
"PHIL," Phillips 66 dealers
GRANT STEWART, research man
LYLE BLISS, research man

The manufacture of isooctane, important ingredient in the blending of high-octane aviation fuels, will be featured. Isooctane, neohexane, and isopentane are ingredients commercially available for the manufacture

of aviation gasoline. By the addition of tetraethyl lead to blends of these ingredients, an aviation fuel can be produced with an octane number of 115.

Various steps in the production and refining of oil and gas will be shown by a series of scale models, one of the final steps in isooctane manufacture being carried on in actual laboratory apparatus. It is estimated that about 12 qt. of the product will be manufactured at the booth during the exposition.

The striking appearance of fluorescent dyes, crude oils, and oil sands under ultraviolet light will be demonstrated in a separate display. Crude oils, oil sands, and solutions of commercial dyes will be illuminated by transmitted light, reflected light, and ultraviolet light to show contrast between these types of illumination.

Research men will be on hand to answer questions, and "Phil" will be on duty 24 hours a day to give visitors spot news about the exposition, with possibly an occasional song to liven things up a bit.

Petroleum Engineer
Dallas, Tex.
Block 2

Pittsburgh Equitable Meter Co.
Pittsburgh, Pa.
35, 36, 37, and 38 Scientific and Technical Building

In attendance

COL. W. F. ROCKWELL, president
CAPT. A. E. HIGGINS, vice president and sales manager
A. J. KERR, district manager
R. R. BUSH — J. E. B. SUNDY
TOM STACY — T. R. VAN ARSDALE
F. N. DILLMAN — O. W. BARNETT
W. R. McLAUGHLIN — D. D. COLLINS
C. K. MADISON — C. E. BAIRD
J. S. COTTRELL

Showing a complete line of Emco gas meters, Emco gas pressure regulators and Pittsburgh oil and gasoline meters. Items featured will be the Emco Type 38 orifice meter, the new Emco "1001" regulator and the new Rotocycle oil meter for both pipe-line and marketing services. Cutaway models of all meters and regulators will be on display. In addition, this company will show Stupakoff bottom-hole pressure gages and samplers and Raybould couplings. These latter products are handled on an exclusive distributorship by the company.

Preferred by Large Refining Companies

The two Regulators here seen are on a gas line leading to a Texas refinery, which is owned by one of the great oil-producing companies. Like all C-F low-pressure Regulators, they afford protection in case of failure of gas supply. Their merits include sturdy construction, sure precision, and long life, as well as convenience of installation and maintenance.

C-F 2" Low-Pressure Regulators with Automatic Cut-Off Attachment.

See Our Exhibit INTERNATIONAL PETROLEUM EXPOSITION TULSA MAY, 18-25

Visit our Exhibit at Tulsa.

Write for new Catalog of Regulators for All Uses.

The CHAPLIN-FULTON MFG. CO.

28-40 PENN AVE. CF PITTSBURGH, PA.

IT'S GOING TO BE TOUGH

When It's Hard-Surfaced with

COLMONOY
Hard Surfacing Alloys and Overlay Metals

SEE COLMONOY APPLIED

Demonstration in Booth 59, California Bldg.

See Colmonoy being applied by both gas and electric welding equipment. See the display of Colmonoy applications on pump rods, plungers, pump sleeves, wash pipes, sucker rod bushings, tubing collars, etc. Learn how Colmonoy is saving money for the oil industry by its high resistance to wear, corrosion and abrasion.

Demonstration in charge of A. B. Kern, L. V. La Rou and F. G. Jones.

WALL-COLMONOY CORP.

BRANCH OFFICES
315 E. 13th St., Tulsa, Okla.
558 W. 54th St., New York, N. Y.
3155 Seneca St., Buffalo, N. Y.
2054 W. Harrison St., Chicago, Ill.
123 W. Philadelphia St., Whittier, Calif.

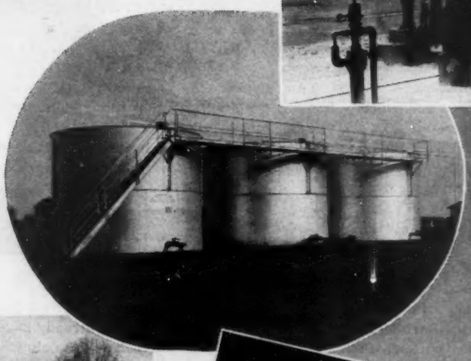
See Our Exhibit INTERNATIONAL PETROLEUM EXPOSITION TULSA MAY, 18-25

GENERAL OFFICES
Sixth Floor, Buhl Bldg
Detroit, Mich.

LABORATORIES AND PLANT
1067 W. Grand Blvd.
Detroit, Mich.

Serving...

THE OIL INDUSTRY



NATIONAL BANK OF TULSA

The Oil Bank of America

Member Federal Deposit Insurance Corporation

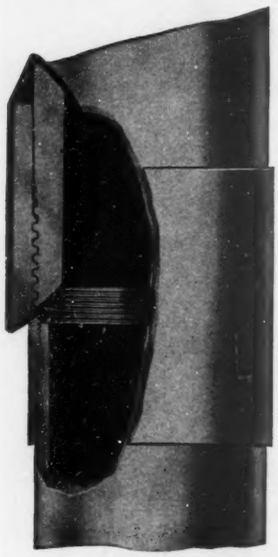
Pittsburgh Steel Company
Pittsburgh, Pa.

4-5-6 Texas Building

In attendance

W. G. HUME, general manager of sales
J. K. BEESON, assistant general manager of sales
L. A. MULLEN, assistant manager of sales
E. R. SMITH, assistant manager of sales, Oil country tubular products
E. J. PROTIN, assistant manager, tube division
E. T. WIBLE, manager product promotion
S. E. ELDER, district sales manager, Tulsa
A. S. VANDERVOORT, JR., district sales manager, Houston
JOHN WAIS, field engineer
GEORGE W. NOVAK, field engineer
W. B. BAYLOR, field engineer

A feature of Pittsburgh Steel Co.'s exhibit is an actual operating model, internal-pressure testing machine, demonstrating hydrostatic tension testing. This miniature model is patterned after the company's large testing equipment at the mill. By the company's exclusive method of testing casing, the pipe is tested while in tension which corresponds to the conditions in the field, because casing being run in the well is always in tension. Under conventional mill practice of hydrostatic testing the pipe is under compression.



Included in the company's display are special cutaway samples of Pittsburgh seamless A.P.I. casing, drill pipe and tubing; Pittsburgh special Acme thread double-seal casing with its six-pitch modified Acme type threads making the joint quick stabbing and fast running; Pittsburgh special drill pipe with the tapered double-grip joint, Pittsburgh special Acme thread oil-well tubing, and a special display of Pittsburgh seamless drill pipe with unitized tool joints.

Pittsburgh Lectrodryer Corp.
Pittsburgh, Pa.

16 California Building

In attendance

G. L. SIMPSON T. D. WILLIAMSON, JR.
T. D. WILLIAMSON L. C. WAY
E. G. LANGHAMMER

Exhibiting pictures of various types of Lectrodryer equipment stressing gas drying units for the prevention of the formation of gas hydrates in natural-gas lines and for use in various repressuring applications. Other Lectrodryer units shown are for drying air and various gases to very low dew points, temperatures up to 3,500 lb. per sq. in. The air conditioning type Lectrodryer will also be pictured. This type unit maintains lower-than-normal relative humidities in rooms or provides large flows of partially dehumidified air. The Lectrobreather for the prevention of the entrance of atmospheric moisture into oil and chemical storage tanks is also being shown.

Plomb Tool Co.
Los Angeles, Calif.

51 California Building

In attendance

RAY RICKE ADE FREUND
RICHARD LAMB

This display, the company states, will be the only hand-tool exhibit at the show. The company has a unique way of displaying its oil-country tool line by means of a large and beautifully finished panel with one each of all the tools displayed thereon.

One of the new products that already has created quite a lot of comment and which will be shown is the striking wrench illustrated. This particular type wrench, it is said, has found favor in the oil industry because of its application in places difficult of access.

Another part of the tool line on display is the heavy-duty and extra heavy-duty line of sockets and attachments especially designed for oil-country use.

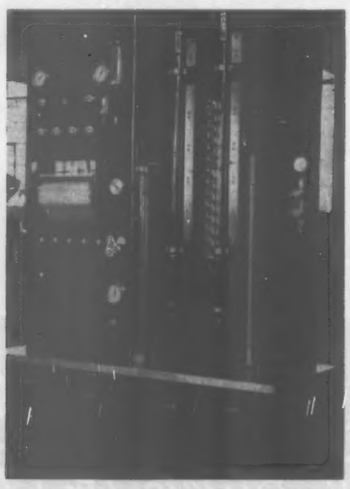
Podbielniak Centrifugal Super-Contactor Co.
Chicago, Ill.

22-23 Scientific and Technical Building

In attendance

DR. WALTER J. PODBIELNIAK
MRS. WLADZIA G. PODBIELNIAK
H. R. KAISER

Products displayed: "Hyd-Robot" automatic recording low-temperature fractional-analysis apparatus. "SuperCool" high-efficiency low-temperature fractionating columns, with new "Heli-Grid" packings. Standardized low-temperature fractionating-analysis strip charts for both automatic and manual plotting. Model B high-temperature precise-fractionating apparatus, with new high-efficiency "Heli-Grid" packing. No. 6000 centrifugal countercurrent, continuous, multistage solvent extractor and chemical reactor.



Wm. Powell Co.
Cincinnati, Ohio

1-2 Texas Building

In attendance

JAMES COOMBE E. K. TED PIERCE
WILLIAM HEILIG E. R. NOLL
H. P. MacGREGOR

Most of the company's valves displayed will be sectioned to show the constructional details. Members of the engineering staff will be present to discuss valve design and materials, and to aid in solving valve-control problems. In addition to the standard bronze and iron valves, the company will display cast-steel and alloy-steel valves for high-pressure and temperature service with flanged and welding ends.

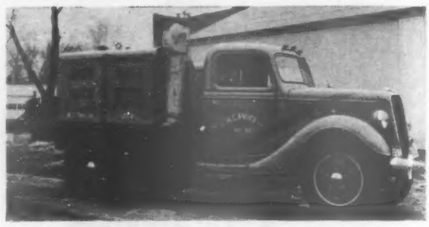
H. C. Price Co.
Bartlesville, Okla.

205 and 246 Oklahoma Building

In attendance

H. C. PRICE G. W. FOWLER
A. T. BEAMAN S. H. PAXSON
J. M. THOMAS

The display will consist of large maps of the United States and Venezuela upon which will be traced all of the oil and gas lines which have been electric-welded by this company—the total mileage of which will aggregate about 9,500 miles. There will also be enlarged pictures showing the electric-welding of pipe lines and oil-well casing.



%Proportioners, Inc.%
Providence, R. I.

78-79 Texas Building

In attendance

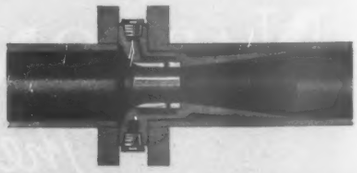
B. W. VINSON, Vinson Supply Co.
H. W. ARDUSER, Vinson Supply Co.
R. P. LOWE, vice president and chief engineer of %Proportioneers, Inc.%

A new streamlined constant-rate proportioning pump incorporating an oil-seal yoke will be on display. This pump can be run at constant rate, controlled on a repeating time cycle or operated to feed "shots" of an adjustable time duration based on accumulation of flow through a venturi tube or orifice plate and flow responsive meter.

A complete demonstration unit illustrating the flow proportional injection of coloring, and gum inhibitor into gasoline will also be exhibited. Larger units for acid treating, oil blending, gasoline blending, doctor treating and sulfur sweetening will be shown.

Standard methods written to show the application of the company's equipment to various refinery processes will be available. These contain information on the gum-inhibiting, coloring, acid-treating, lube-oil blending, corrosion prevention in pipe lines, boiler-feed water treatment and caustic dilution.

Builders Iron Foundry of Providence, R. I., have developed, it is stated, a new type of flow nozzle of special interest to oil-refinery and pipe-line engineers. This nozzle is installed inside of the line at a flanged connection. Low cost and high-power recovery are its outstanding features. On exhibit for the first time.



"....let's meet HERE!"

"You keep your eyes and ears open when you step into this Frick-Reid exhibit building at the International Petroleum Exposition, and if you don't see a soul you know you'll still sense something friendly that seems like home. It's hard to define, but you get the same pleasant impression in a Frick-Reid store.

"Frick-Reid stores have been MY warehouse for more years than my wife would like to hear mentioned. I always enjoy the Frick-Reid exhibit, and I generally go out to the Frick-Reid General Office Building at 108 North Trenton Avenue in Tulsa, because I like to try for a peek at what makes the wheels go around. This Frick-Reid organization seems to have the happy faculty of concentrating everything on one store without neglecting the other 74, if you know what I mean. You never fail to find what it takes to do the job at hand, and I've handled men and materials where conditions varied widely.

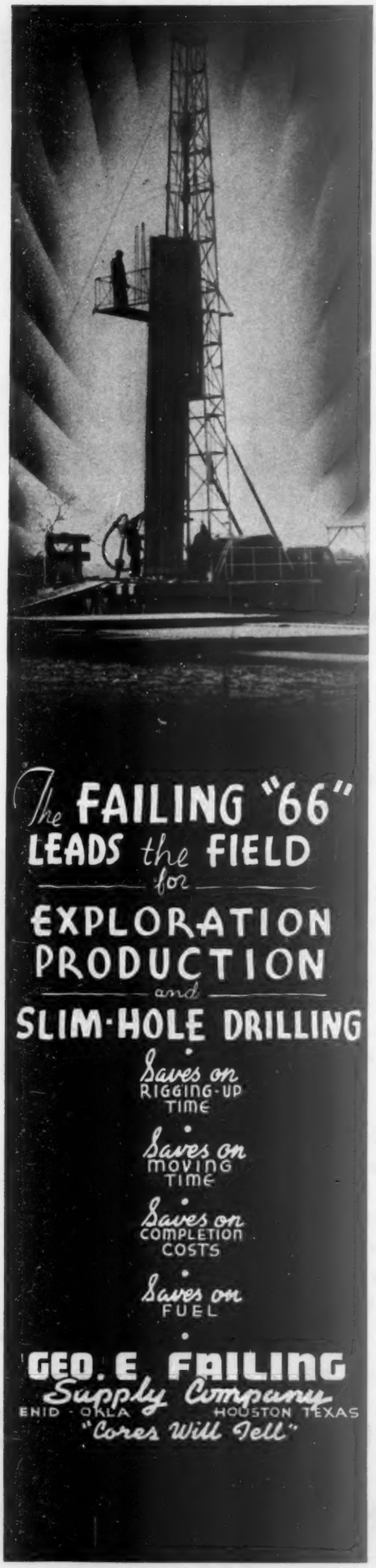
"When a fellow goes home after one of these Shows, somewhat confused by the things he's seen and heard, it's a comfort to know that the great organization back of his Frick-Reid store will keep the chaff winnowed from the wheat, and wheat on hand best adapted to the climate and other local conditions."

Frick-Reid General Office Building, Tulsa, where engineers and other experts collaborate with manufacturers from coast to coast to the end that 75 Frick-Reid Stores in old and new fields may best serve local needs.

"...here's MY warehouse!"

FRICK-REID *Supply Corporation*

TULSA, OKLAHOMA

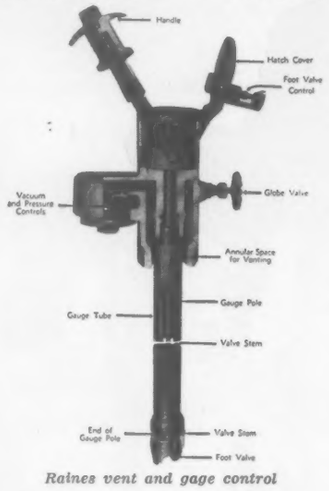


Progressive Brass Manufacturing Co.
Tulsa, Okla.

10 Texas Building

In attendance

E. K. THOMAS — C. O. BECKETT
N. A. DOOLITTLE — E. A. RAINES



Raines vent and gage control

Displaying Raines vent and gage control, combining the features of a pressure and vacuum valve device whereby you can gage and take the temperature of the liquid in a tank without losing any of the gases accumulated therein.

Pyrene Manufacturing Co.
Newark, N. J.

38-39 Oklahoma Building

In attendance

J. P. MALONEY, general field sales manager
W. L. FERRIER, Chicago district manager
B. F. COVINGTON — B. S. ALLEN

Introducing a Super-Phomaire play pipe, Model PP31, capable of making 1,000 gal. of fire-smothering foam per minute from only 3 gal. of Phomaide solution, 55 gal. of water, and air. It is the largest of three portable foam-making water nozzles operated by an entirely new method—mechanically rather than chemically—an exclusive development of the company. In spite of its large foam-production this new portable fire tool requires only one man at the nozzle and automatically combines water, air and solution in the proper proportions without adjustments or moving parts.

In addition the company's extensive line of vaporizing liquid, foam, soda-acid, antifreeze and gas cartridge type extinguishers and tire chains will also be shown. Also carbon dioxide extinguishers and systems of the company's affiliate, C-O-Two Fire Equipment Co.

Quigley Company, Inc., and Quigley Panel Constructions, Inc.
New York

1-2 Scientific and Technical Building

In attendance

D. F. McMAHON, executive vice president
H. C. THAYER, vice president and chief engineer
J. D. LAWRENCE, vice president and export manager
I. A. PFEIL, manager Triple-A department
J. W. RIDDLE — G. C. COMPTON
HARRY E. ETTER — L. B. WILSON
E. L. BASSETT — C. E. BECKETT
HARRY R. SHANNON

Featuring Quigley panel-type construction, a revolutionary development for the oil industry. An actual installation of precast panels of insulating and refractory materials applied to a furnace structure will be shown. These precast panels are shipped from the factory complete, ready for erecting into place, simply by fastening with bolts and nuts.

The company's complete line of industrial specialties, consisting of refractories, insulation, protective coatings, sealing compounds, and detergents will also be displayed. These well-known products consist of Hytempite, Fyre-Mortar, Q-chrome, Q-chromastic, specification fire brick, Mono-line, Cast-refract, Hearth-crete, Quigley gun, acidproof cements, Insulbrix, Insulbond, Insulclad, Insulblox, Insulag, Insulcrete—Triple-A protective coatings—Q-seal, Damit—and Annite.

Railway Express Agency
Tulsa, Okla.

28 Scientific and Technical Building

In attendance

V. S. HIGGINS, general agent
GEORGE P. GRAESER, traveling commercial agent
T. J. MACHLER, commercial agent
MRS. M. D. ENMEIER

Something new in service, explaining the coordination of air and rail express shipments, will be exhibited. Today, delays caused by breakdowns in field operations, are no longer considered costly, as by use of the company's fast rail, air, or air-rail, repair units or parts, are rushed from supply houses to any field point, cutting down costly shut-down periods. South American field operations, through the coordination of Pan American Air Service and the Railway Express Agency, are only 1 to 3 days from any U. S. oil-company home office.

Ralco Sales Co.
Houston, Tex.

W-K-M Co. Exhibit

207-210 and 241-244 Oklahoma Building

Exhibiting the universal ball-seat swab, a vapor-proof lantern, the improved Buck one-bolt wire-line clamp, and the Rig-A-Lite vapor-proof derrick-lighting units. The company's universal ball-seat swab, illustrated, in the open and the closed position, is especially designed for swabbing well tubing. Among the outstanding features claimed by the manufacturer are the swab's provision for fast falling and full load lifting. A new type of swab cup operates independently of the mandrel. Metal guards are provided at both ends of each cup, eliminating the possibility of hanging the swab in tubing joint. Ground ball seats are vulcanized integral at each end of every cup. Equal pressure is applied over the entire surface of the cup rubber. Positive loading of the swab is accomplished at the moment slack is taken in the line. These and numerous other improved swab features are claimed for this new tool by the manufacturer.

The company's vapor-proof electric lantern is designed for use in gas vapor and tank gaging, pipe line, bulk stations, etc. The lamp is suspended on an aluminum base and the light can be focused at any desired angle. The lantern uses a standard-size dry-cell battery, is equipped with a 5-volt bulb. The reflector is made of highly polished noncorrosive metal.

The Buck clamp offers a greater clamping surface, eliminating kinking of line. Only one bolt is necessary for application, both top and bottom sections of the clamp are formed to fit the lay of the wire. The manufacturer claims that replacements are practically limited to the one bolt which the clamp employs.

The Ralco section of the W-K-M exhibit is in charge of Harry B. Cookston, sales manager.

Rector Well Equipment Co., Inc.
Fort Worth, Tex.

20-21 Oklahoma Building

In attendance

L. L. RECTOR — L. D. HILTON
C. L. CRON — E. W. BROCKMAN
C. W. ZARTMAN — W. S. McEWEN
J. C. SPILLAR

A complete line of surface equipment will be displayed. This will include the split-ring - recessed-coupling - type casing heads, both threaded and flanged; mandrel suspension-type casing and tubing heads, with both threaded and welding mandrels; Type RH slip suspension casing heads; Type AL latch-type tubing head, one of the features of the exhibit; Type MS man-

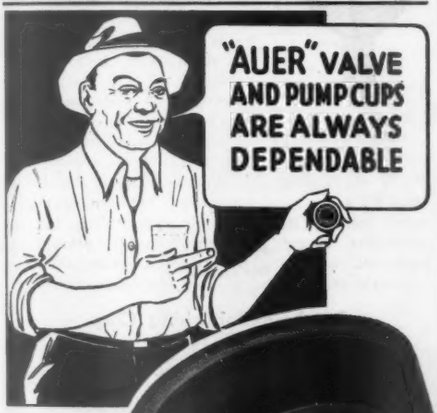
"DERRICK" STEEL TAPES

Made for heavy duty, these tough, accurate tapes are especially well suited for use around a derrick. The large finger ring and end hook allow the line to be held either by another person or by some object. The 1/4" line reduces wind resistance. Free catalog.

LUFKIN

SAGINAW, MICHIGAN • New York City

TAPES · RULES · PRECISION TOOLS



"SEEP" CUPS "STAR" CUPS

Nothing takes the place of leather for valve and pump cups. "Seep" and "Star" Cups, made of selected leather, are famous in the oil industry for long service and dependability. They keep pumping operations at high efficiency. Any experienced oil pumper will tell you "They can't be beat."

C. L. & W. W. AUER

ESTABLISHED 1880 CORRY, PA.

drel-stripper tubing head; stripper-type tubing heads; christmas-tree assemblies; cable-tool drilling head.

Also there will be on display a Rectorseal and Rectorkote. The Rector service unit will also be on display.

The outstanding feature of Rectorheads, it is said, is their simplicity of design. This is made possible in part by the use of the Rector patented sealing and holddown arrangement, this being a single ARI-type metal seal ring acting dually as a pressure seal and mandrel holddown.

Reda Pump Company

Bartlesville, Okla.

50-51-54-55 Kansas Building

In attendance

A. ARUTUNOFF	P. E. LOYE
G. S. SCHUHMACHER	R. P. CLARK
VICTOR KOTSCHOUBEY	E. V. GUFFEY
F. REES FLINT	J. C. HUTCHINS
O. M. HOLTSCLAW	DALTON W. LAIN

Displaying Reda electrical centrifugal submergible pumping units and operating equipment.

Reed Roller Bit Co.

Houston, Tex.

Block 4, Drake Drive

In attendance

R. G. HAMAKER	W. J. NUTTO
H. B. BOOK	J. E. HOFFOSS
HARPER BLACK	CY JOHNSON
J. C. FORTUNE	JOHN WEAVER
VIC RUPE	EDMUND BURKE

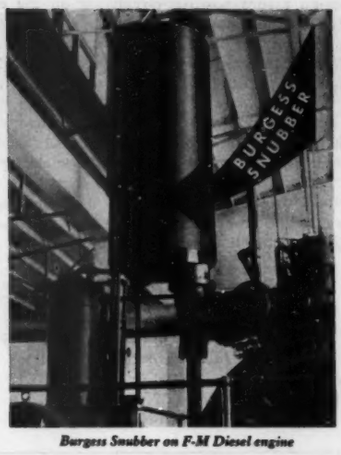
The WIB drilling bit is the latest development in design for a fishtail or drag-type bit, incorporating the use of drop-forged steel blades welded into and made an integral part of a cast-steel body. The bit head, or body, is cast from a select alloy steel, then heat treated for maximum durability.

The company's drill collars are stated to be forged from carefully selected alloy steels of the same high quality and toughness as is used in the regular manufacture of the company's tool joints. Special heat-treating furnaces have been designed by the company and are in operation for the purpose of producing drill collars with a maximum combination of hardness and toughness.

The Kor-King (conventional) core drill, manufactured by the company, incorporates many exclusive features among which are the nonrotating inner barrel, operating against oilproof, slush-lubricated rubber bearings; nonrotating type core catcher, and core catcher protector. The Kor-King is also available in inside vent, outside vent or drop-ball type in the same barrel.

The BR wire-line core barrel, manufactured by the company, is especially designed for intermittent or continuous coring. In the design of this wire-line core barrel, the company states its engineers have incorporated many exclusive features among which are the positive locking and releasing device for both the core barrel and center-bit assemblies; the patented spring-loading mechanism; and replaceable core-barrel cutter heads.

The balanced cross-roller design of the company's rock bits causes the cutter teeth to twist and tear the formation as they penetrate, permitting lighter drilling weights and faster rotary speeds. The unitized construction (four-point support on combination ball thrust and roller bearings) gives an added factor of safety, especially in the use of heavier weights for drilling the harder formations. Improvements in slush



Burgess Snubber on F-M Diesel engine

How to PREVENT Diesel Exhaust Noise

Don't subdue Diesel exhaust noise . . . prevent it this new way. Big, heavy mufflers are no longer necessary to quiet the din of exhaust noise. Now you can completely silence it by preventing it.

Just install a Burgess Exhaust Snubber. It solves the problem of eliminating exhaust roar by snubbing the slug of high velocity exhaust gas and passing it on smoothly to the atmosphere. There is no violent impact with the atmosphere. Noise is prevented . . . not muffled.

Requires No Tuning

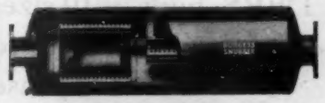
The Burgess Snubber can be used on any type engine with any length exhaust piping system. It requires absolutely no tuning. The position of the snubber does not affect its operation. It is lighter and more compact than old style mufflers.

Low Fuel Cost

The unit contains two snubbing sections which prevent resonance at pipe frequency. Fuel consumption is not increased. The engine can operate at maximum efficiency because there is no high back pressure to interfere with proper scavenging.

Send Coupon for Details

Burgess Spark-Arresting and Intake Snubbers are also available. Send coupon for free Data Book showing how a Burgess Snubber will solve your noise problem.

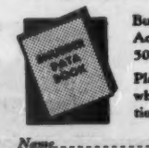


It snubs the slug of exhaust gases

BURGESS SNUBBERS

Patented and Patents Applied For

Send for FREE Data Book



Burgess Battery Company
Acoustic Division, Dept. O
300 W. Huron St., Chicago, Ill.

Please send Snubber Data Book which gives complete information on engine exhaust problems.

Name.....

Company.....

Street.....

City..... *State*.....

tube design assure positive circulation on the cutter teeth and on the bottom of the hole.

The teeth of the rock bit cutters are hard faced with Reedite, a tungsten-carbon preparation with a hardness rating just below that of a diamond, to increase the cutting life of the bit.

The company's Shrink-Grip tool joints are manufactured from carefully selected alloy steels, and are scientifically heat treated in modern electrically controlled furnaces to insure proper hardness.

The Reed valve was designed and developed by the company to insure greater dependability and ease of operation and to eliminate disadvantages.

Refinery Supply Co.
Tulsa, Okla.

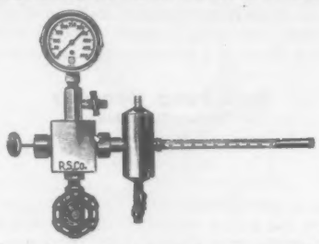
8-9 Scientific and Technical Building

In attendance

J. B. OKESON — W. A. SCHLUETER
T. C. WILLIAMS — W. E. SCHLUETER
H. F. GOODENOUGH

Displaying laboratory apparatus, chemical glassware, gas-testing instruments, and oil-testing instruments. Thermometers and recording and controlling instruments.

The dew-point tester for gases under pressure was designed primarily for use in connection with the high-



Dew-point tester for gases under pressure

pressure gas-transmission lines where the dew point of the gas is a very important factor. With this dew point tester it is possible to determine the dew point of gases under the conditions of pressure as they are found to exist. With this apparatus dew points can be accurately determined with safety at high pressures. The standard range of this apparatus is 0 to 500 lb. per sq. in.; however, the instrument is suitable to determine dew point of gases under pressure up to 2,500 lb. per sq. in., when a gage of suitable range is installed on the instrument. The dew-point tester is simple to operate, and because of the sensitivity of the instrument, dew points can be determined with an accuracy of 0.2° F.

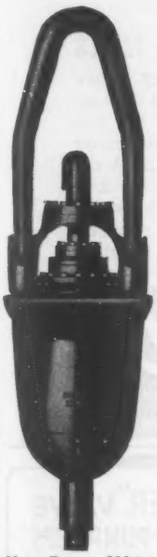
Regan Forge & Engineering Co.
San Pedro, Calif.

198-199-200-251-252-253 Oklahoma Building

In attendance

TOM REGAN — C. M. FULLER
STANLEY MINOR — TUT LEE
R. A. HILL, manager, Mid-Continent division, and other sales engineers.

Numerous new products are to be presented, including a new type of mud screen, a casing centralizer, a 300-ton capacity, multiple-bearing swivel, and various applications of blowout preventers. The exhibit will show various types of the company's equipment suspended in the air, rotating, so that the visitor can see all parts of the products from one position. A novel demonstration of the new casing centralizer has been constructed to show its operation in the well, demonstrating the movement of the feet within the open-hole formation. Miniature models of the centralizer, molded in plastics, will also be shown. A new type of stereoscopic-projection will present enlarged kodachrome views of Regan equipment in the field. The huge, narrow type 121-in. traveling block, with a height of 156 in., will be suspended from a specially fabricated structure. Various types of tubing heads and tubing blocks will be exhibited. With the recent appointment of the company as Mid-Continent and Gulf Coast distributors of Bettis casing protectors and stabilizers, a complete line of these products will be shown, including installation equipment. Other equipment shown includes the company's crown block, blowout preventers, casing and control heads, combination hooks, oil savers; also rod strippers, removable sleeve-type rods, gin-pole sheaves and swabbing sheaves.



New Regan 300-ton multiple-bearing swivel to be exhibited at oil show

Reinhold Publishing Corp.
New York

7 Scientific and Technical Building

In attendance

FRANCIS M. TURNER, vice president

Exhibit will consist of scientific and technical books of interest to technical men and business executives throughout the petroleum industry. This exhibit will include two books published this month, namely "Conversion of Petroleum: Production of Motor Fuels by Thermal and Catalytic Processes," by A. N. Sachanen of research and development division, Socony-Vacuum Oil Co., Inc., Paulsboro, N. J., and "Catalysis: Inorganic and Organic," by Gustav Egloff, director of research, Universal Oil Products Co., Inc., Chicago. Will also have on exhibition copies of the Chemical Engineering Catalog, Industrial and Engineering Chemistry, and Metals and Alloys.

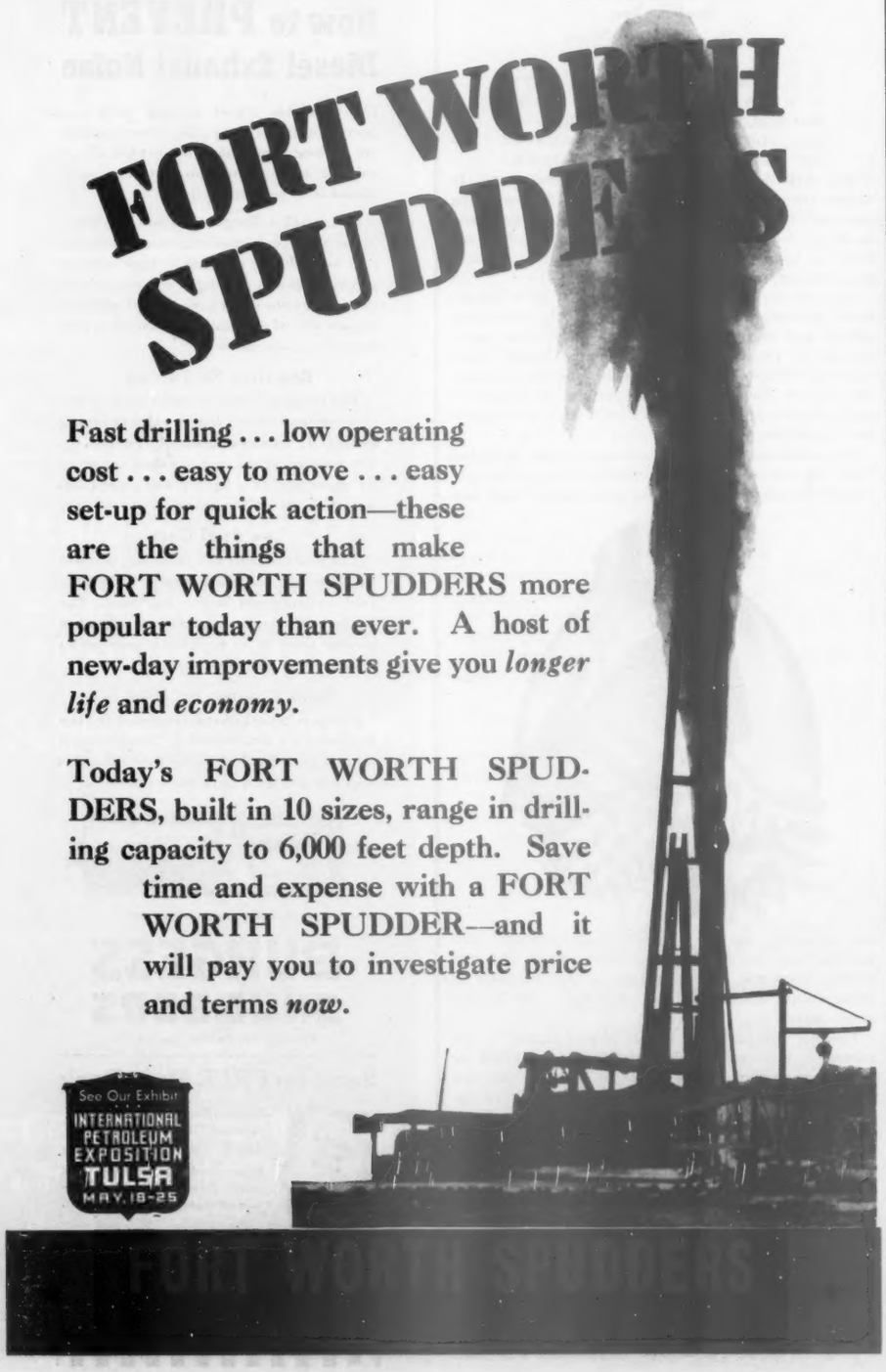
Republic Steel Corp.
Cleveland, Ohio

103-114, inclusive, Kansas Building

In attendance

E. E. HAUBEGGER — M. B. BROWN
G. F. HESS — HOYLE JONES
J. E. HOLMES — J. E. McFATE
G. R. LOCKE — W. M. NECKERMAN
M. J. CAUGER — C. W. RUTH
J. M. HIGENBOTHAM

Republic Steel Co., with headquarters in Tulsa, a


FORT WORTH SPUDDERS
Fast drilling . . . low operating cost . . . easy to move . . . easy set-up for quick action—these are the things that make FORT WORTH SPUDDERS more popular today than ever. A host of new-day improvements give you *longer life* and *economy*.
Today's FORT WORTH SPUDDERS, built in 10 sizes, range in drilling capacity to 6,000 feet depth. Save time and expense with a FORT WORTH SPUDDER—and it will pay you to investigate price and terms *now*.
See Our Exhibit
INTERNATIONAL PETROLEUM EXPOSITION
TULSA
MAY. 18-25

Basic McEVOY POLICY

To manufacture the safest, most practical and most economical completion equipment modern science knows how to produce—and to anticipate future needs with constant engineering advances.

To serve the buyer promptly and efficiently in every phase of every transaction—and to offer valuable service throughout the life of the equipment.

NEW PROGRESSIVE MANAGEMENT

GUS S. WORTHAM
President

A. HENDERSON
Vice-President and Sales Manager

GEORGE S. WATSON
Executive Vice-President and General Manager

J. H. McEVOY
Vice-President

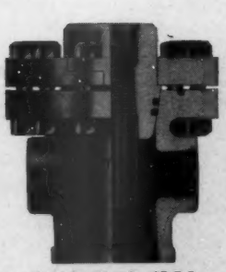
GEORGE A. BUTLER
Counsel

J. H. HOWARD
Chief Engineer

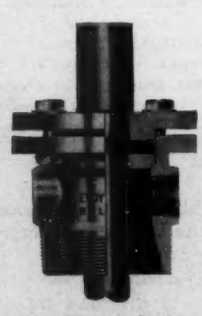
MONEY SAVING McEVOY PRODUCTS

Units in "McEvoy Complete Completion Service"

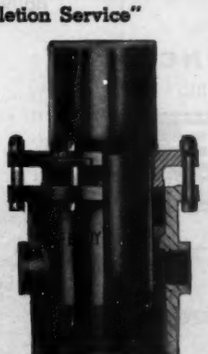
McEvoy Set Shoes



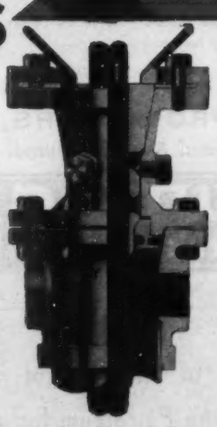
Tubing Heads (A.P.I. Flanges)



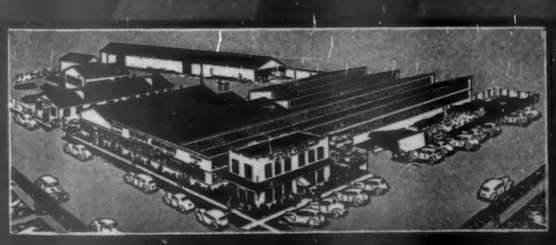
Low Pressure Tubing Heads



Louisiana Pattern Braden Heads



Stripper Type Tubing Heads



McEVOY COMPANY
OIL WELL EQUIPMENT

HOUSTON
TEXAS, U. S. A.
TEXAS AT MILBY

SINCE 1906

NEW YORK
EXPORT OFFICE
30 CHURCH STREET

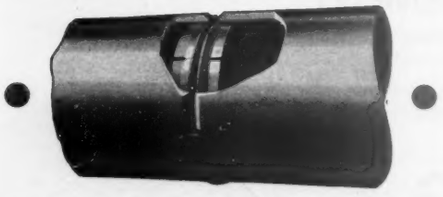
The *new* All Steel
WEDGE
TOOL JOINT
PROTECTORS

Give Maximum Protection

PIN END
Protector
Patented

Now that tool joints are welded or shrunk on the drill pipe it is more important than ever that the threads are PROPERLY PROTECTED. The many early thread failures or "washouts" were due to damaged tool joint threads or pin and box shoulders. Prevent this serious loss by using WEDGE All Steel Tool Joint Protectors. They have several features of construction that assure MAXIMUM PROTECTION. Sets are made for all sizes and types of tool joints.

WEDGE Chill Rings SAVE MONEY



STEEL PIPE lines can be laid faster and better with the use of WEDGE Chill Rings. They save welding material, speed aligning, eliminate icicles and assure perfect union. They enable skilled help to do better and faster work. Write today for prices.

Write for Prices and Specifications

WEDGE PROTECTORS, INC.
9520 Richmond Ave., Cleveland, Ohio

use WEDGE
Thread Protectors-Chill Rings

Suppliers of all types of Hardware to the Petroleum Industry for 21 years. See our exhibit at booths 13, 14, 15, 16, in the Kansas Building.

GATES HARDWARE COMPANY
Brady & Elgin **Tulsa, Okla.**

subsidiary of Republic Steel, will exhibit in Spaces 102 and 115, both adjacent to Republic Steel's space.

Products displayed: Major emphasis will be placed on normalized casing and line pipe. Actual samples and test speciments will be included. A feature will be a large scale blowup of a chart recently issued by the company showing collapse and joint-strength data.

In addition to the tubular products display, the company will feature products of other sales divisions of the corporation. Included will be material on alloy steels, Enduro stainless steel, wire, Upson bolts and nuts, sheets and strip, Electrunite boiler tubes, containers made by Niles Steel Products Division and others.

Ridge Tool Co.
Elyria, Ohio

28-29-30 Texas Building

Rodgers Hydraulic, Inc.
Minneapolis, Minn.

Block "L"

In attendance

J. S. RODGERS, chief engineer
GEORGE A. RODGERS, vice president
J. G. MURPHY, sales manager

One feature of special interest to oil men is the display of three entirely new pieces of equipment, one of which is a portable kelly and pipe straightener. This unit is very compact, easily handled, and has a capacity of 100 tons. Kellys may be straightened in the field quickly and easily and without removing them from the derrick if preferred. These units operate either by hand or power. Additional fixture can be had with this unit for straightening drill collars.

Another unique machine is a hydraulic coupling salvager for removal of couplings, valves, etc., from old pipe. Fittings can be removed quickly without damage to the threads. This unit is fast and powerful, is power-operated, mounted on rubber, and has a capacity of 100 tons pressure. A pipe-straightening attachment is available for this unit.

Still another unit embodies an entirely new principle in hydrostatic test units. These units are motor-driven, fast and have finger-tip control. Pressure may be set for any desired point (up to the capacity of unit) and maintained at that point. These units are made in two different pressure ranges, Model WT-1 from 150 lb. to 7,500 lb. and Model WT-2 from 300 lb. to 12,000 lb.

Robinson Packer Co.
Tulsa, Okla.

5 Oklahoma Building

Rollway Bearing Company, Inc.
Syracuse, N. Y.

58 California Building

In attendance

H. F. HODGKINS, president
H. A. PIERCE, sales manager
J. E. SERO, assistant chief engineer
C. W. McNEIL, Houston representative
D. A. CANT, Tulsa representative

Exhibiting cylindrical roller bearings, both radial and thrust, for use in oil-field equipment.

Republic Rubber Division
Lee Rubber & Tire Corp.

Block I

Youngstown, Ohio

New equipment shown includes Champion full-flow rotary hose. The service capacities of its double or triple-wire reinforced Champion rotary hose under severe drilling conditions and high-pumping pressures, the company says, have been further extended through the application of new built-in, full-flow couplings. These couplings entirely eliminate metal from the bore thereby reducing danger of leakage and failure due to cutting out of nozzles. They form an integral part of the hose through permanent mechanical anchorage to the reinforcement wire, each layer of the metal hose member being carried up and over clamping segments attached to the built-in sleeve. The wires are then turned back, extended into the body of the hose and bound down with a close-spaced metal helix, giving extra reinforcement to the end section.

New developments in the rubber compounds of the tube and cover and in the friction used to impregnate the fabric of Champion flue-still hose are stated to provide increased resistance to the destructive effects of extreme heat conditions and has a greater protection against the deteriorating effect of oil.

Reprene gasoline hose has a reinforcing body of alternate strands of strong cotton yarn and high-tensile

Champion full-flow rotary hose

wire. The exposed ends of the wire are statically bonded with the couplings and each length of hose is subjected to electrical tests, as well as hydraulic-pressure tests. Reprene tank-unloading hose is similar in construction except heavier and with stronger wire. Smooth bore increases delivery capacity.

Royal Manufacturing Co.
Tulsa, Okla.

Outside, northeast corner Kansas Building

In attendance

W. R. MALLORY R. S. PENNEY
J. M. SHEESLEY

Displaying the company's tool-joint dressing, Zeolite water softeners, oil-field paints, Bettis steam generators, Pyle-National steam turbines and generators, and Texsteam safety valves.

St. Louis Cordage Mills
St. Louis, Mo.

89 Texas Building

In attendance

HAROLD V. PATE, Galveston
E. E. FRIES, assistant sales manager

The company's booth this year will be built of attractive material, carrying out color schemes with indirect lighting. This booth will be specially made, showing conspicuously the company name at the top with a moving panel announcing AMCO "All-Weather" manila rope, one of its outstanding products. The side will have a silver trim, and there will be a lighting effect to most conspicuously display its line of oil-field cordage on one side, and on the other a list of distributors. In the center a moving turntable will display one of the most popular manila products used in the oil industry.

St. Louis Steel Casting Company
St. Louis, Mo.

94 and 95 Oklahoma Building

In attendance

WILLIAM P. BROWN, Tulsa
L. K. BARTHOLIC, Houston, Tex.
F. G. LANGBEIN, St. Louis, Mo.

Showing photos of the routine in the company's plant which it is felt will be very interesting.

Schlumberger Well Surveying Corp.
Houston, Tex.

66-67-68 Scientific and Technical Building

In attendance

E. G. LEONARDON, vice president
P. CHARRIN G. H. MURRAY
W. A. CLARK, JR. L. W. STORM
R. I. SEALE W. J. GILLINGHAM
E. F. STRATTON R. G. HAMILTON
W. B. STEWARD

Exhibit: Electrical logging (automatic recorder, comprehensive illustrations of multielectrode logs from oil-producing areas of the United States and foreign countries). Three types of side-wall samplers with new type bullets. Two types of precision gun perforators.

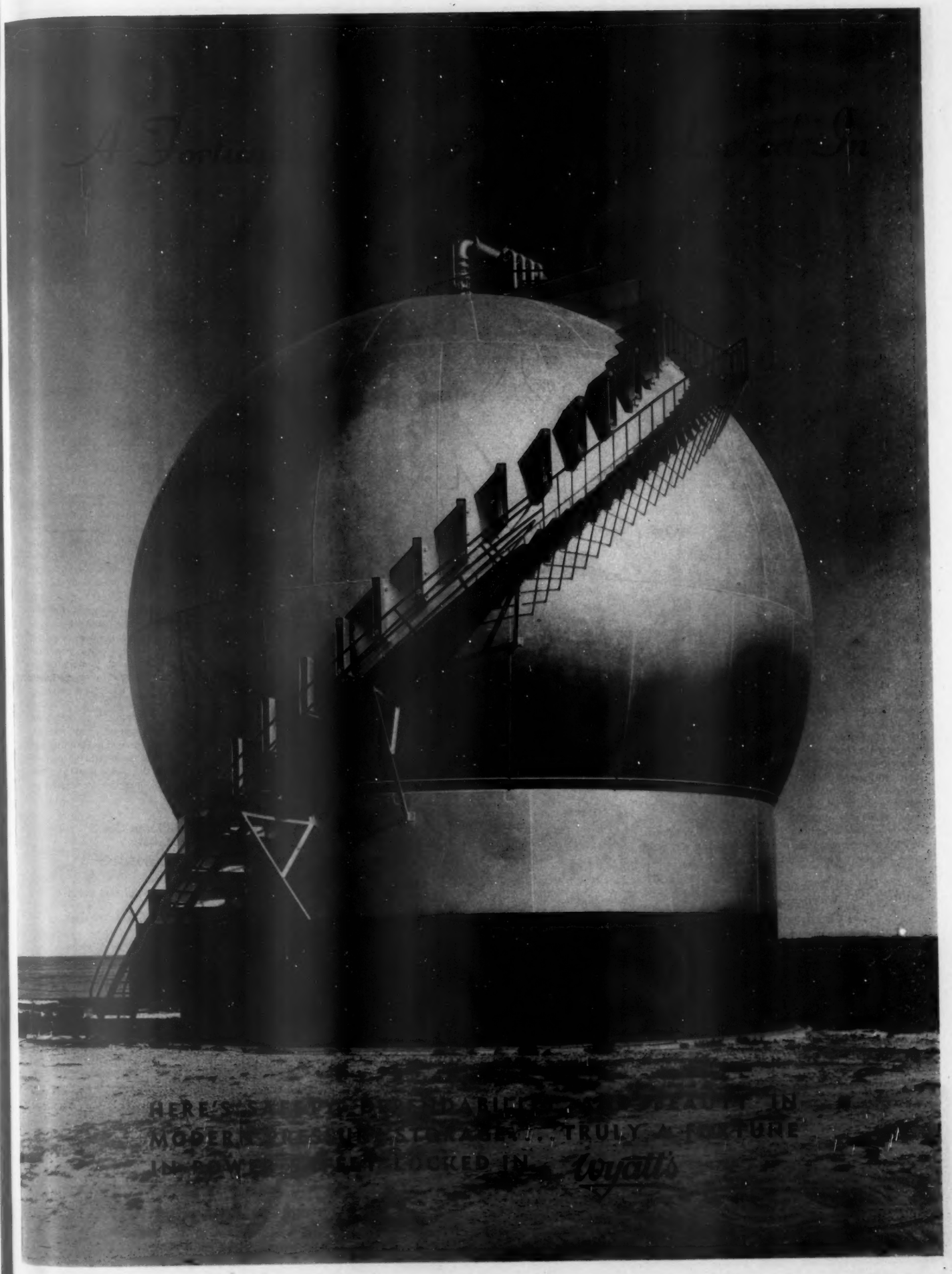
Scintilla Magneto Division
Bendix Aviation Corp.
Sidney, N. Y.

9-10 Oklahoma Building

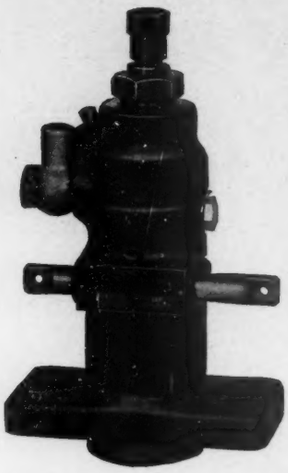
In attendance

A. J. POOLE, sales engineer
A. T. BREMSER, diesel-equipment engineer
J. H. MAYFORTH, sales engineer

Exhibit will consist principally of the company's


Wyatt's

low-tension type of ignition systems which are not modified automotive magnetos but are new equipment developed to meet the requirements of large stationary and industrial engines. The magneto generates low-voltage alternating current and distributes it still at low voltage to individual transformer coils, one located adjacent to each spark plug. A short lead, often less than 12 in., conducts the high-tension current from the coil to the spark plug. The advantage is that low-voltage current can be conducted long distances with very little loss of strength.



The company's fuel-injection pumps are made in single-flange mounted units to be driven through tappets from the engine camshaft. They are supplied for plunger diameters of 10 mm. to 18 mm. the stroke being 15 mm. in all cases. Nozzle-holder assemblies are supplied in a variety of lengths. A unique feature is the use of individual spray tips, instead of having the spray orifices drilled directly into the nozzle body This design gives extra protection to the closely fitted nozzle needle and its seat. Tips can be replaced.

F. E. Schundler & Co., Inc.
Joliet, Ill.

23-24 Kansas Building

In attendance

C. M. SERFLING
H. M. SPRAGUE
R. E. SPRAGUE

Exhibit will display the company's insulation materials. The line includes insulating materials for temperatures from below zero to 1,900° F. It will feature in particular No. 121 Vermiculite block insulation and pipe covering, which eliminates the need of combination high and low temperature insulation, and can be applied in one thickness. This material is also made in fabricated form for weld ells and pipe bends, which gives a more satisfactory job, and makes application easier and faster.

Also featured will be a new type of metal-jacket pipe covering in which the pipe insulation is cemented right into the metal jacket, and the sections come in two halves so the material with the metal jacket can be put on in one operation, instead of two operations.

In addition the company features bentonite clay and barytes for use with oil-drilling mud.

Scovill Manufacturing Co.
Waterbury, Conn.

154 Oklahoma Building

In attendance

J. L. KIMBERLEY
W. H. BITNER

A complete line of heat-exchanger-tube alloys, a set of laboratory test samples, installation tools, samples of installation methods recommended by the company, and technical literature will be among the items of interest to those in the petroleum industry. Cupro nickel, arsenical copper, regular admiralty, and other alloys will be displayed, including a new type of admiralty called phosphorized admiralty. This alloy was developed by the company primarily for those places where the phenomenon of dezincification is pronounced. The results of laboratory and field experiences with this alloy are presented in specially prepared literature. Actual test samples revealing the different effects of the same experiments on both regular admiralty and phosphorized admiralty are on hand for examination.

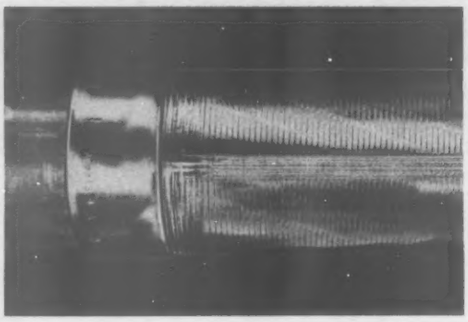
Security Engineering Co., Inc.
Whittier, Calif.

71-72 Scientific and Technical Building

In attendance

W. E. SIEVERS, vice president
AL FORROW, general sales manager
BART GILLESPIE, newly appointed manager, export department
RALPH GRAHAM, engineering department
BOB GOLLUM, branch in Centralia, Ill.

New, modern well-completion and testing techniques, as applied to drillable Securaloy, will be demonstrated and a complete line of Securaloy drillable packers, liners, screens, pipe, and accessories will be exhibited.



Section of new Securaloy wire-wrapped screen liner showing retaining collar in place. Photo shows metal-sprayed surface at right of collar, and longitudinal grooves where bonding is done by metal-spray process

The display will also include the company's left-hand releasing tool, delayed-action packer setting tool, the feeler-tool attachment, and other regular line products.

Displayed for the first time will be a brand new drillable product—wire-wrapped screen liner—now being fabricated at the Houston plant of the company. This new product, it is said, brings to Mid-Continent operators the many desirable features of wire-wrapped screen plus Securaloy's drillability.

Seismograph Service Corporation
Tulsa, Okla.

13 and 14 Scientific and Technical Building

In attendance

G. H. WESTBY
G. F. MARTIN
W. G. GREEN
T. A. MANHART
G. M. GILTINAN
R. P. GREEN
A. J. BARTHELMES

Seismograph maps and records; portable seismograph instruments incorporating all latest features, such as electro magnetically damped galvanometers and geophones; AVC mixers; improved control circuits; motion pictures of seismograph exploration, domestic and abroad.

Seismograph-recording truck with 12 trace-recording instruments and photographic dark room

A field demonstration of complete seismograph recording; drilling, loading of charges, setting instruments, and shooting the shot. Time and location of this field demonstration will be announced in the daily press and at the booth.

Shafer Bearing Corporation
Chicago, Ill.

12 and 13 California Building

In attendance

R. B. HOOVER, president
M. J. TENNES, JR., vice president and sales manager
H. H. YEAGER, assistant sales manager
A. H. WILLIAMS, chief engineer
E. H. FERGUSON, engineer
A. S. KENNEDY, Kansas City, Mo.
GEO. J. FIX and GEO. J. FIX, JR., Dallas, Tex.
J. H. SPRENGER, Memphis, Tenn.
E. D. MALTBY, Los Angeles, Calif.
E. H. VERRALL, advertising manager.

Exhibiting line of Shafer "Concavex" self-aligning radial-thrust roller bearings, in both single and double row types, together with welded steel pillow blocks, flange units, cartridge units, flange-cartridge units, hanger boxes, conveyor rolls, and other types of stock mounted units.

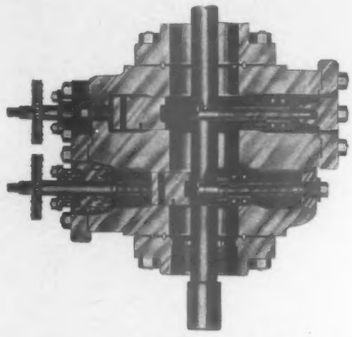
Shaffer Tool Works
Brea, Calif.

1-2 Oklahoma Building

In attendance

W. D. SHAFFER, president
CARL N. VOGT, sales manager, Texas and Mid-Continent

In addition to the new double cellar control gate described, the recently developed gate closing engine for remote power control of cellar gates is shown for the first time. Another featured device is the self-centering ram assembly that centers drill pipe in the cellar control gates used to close around pipe and insure proper alignment with the rubber-faced bore of the rams. Other displays include the Type 38 cellar control gate and a complete line of fishing tools including rotary releasing spears, rotary releasing sockets, expanding pin taps, and inside casing cutters.



The double cellar control gate is designed for use where vertical space available is so small that it is desirable to reduce even the very small space required for two single gates. It is contructed with two ram compartments, the upper equipped with rams to close around pipe and the lower with rams for a complete shutoff when the pipe is out of the hole. The two ram compartments are modeled after the Type 34 cellar control gate and Type 39 self-centering rams are used for closing around pipe in the upper compartment. While the end covers for the two compartments are on opposite ends, the extension of the operating screws of both compartments are on the same end and remote control is used in the same manner as when two gates are employed.

Sherwin-Williams Co.
Cleveland, Ohio

54-55 Oklahoma Building

In attendance

K. H. WOOD, director of sales and distribution
W. J. MONTGOMERY, manager of transportation sales
A. W. EVERETT, southwestern district manager
W. P. CLARK, railway and petroleum sales, Kansas City, Mo.
LANGLY RUMPH, petroleum industry sales, Houston, Tex.
E. J. GEBHART, manager of petroleum industry sales, Tulsa.

Featuring Kem Lustral enamel, the modern synthetic enamel for a thousand and one specialized uses, for brush, spray or dip application, air dry or bake.

The company maintains branches and warehouses throughout the United States and foreign countries to give prompt service to the petroleum industry at all times.

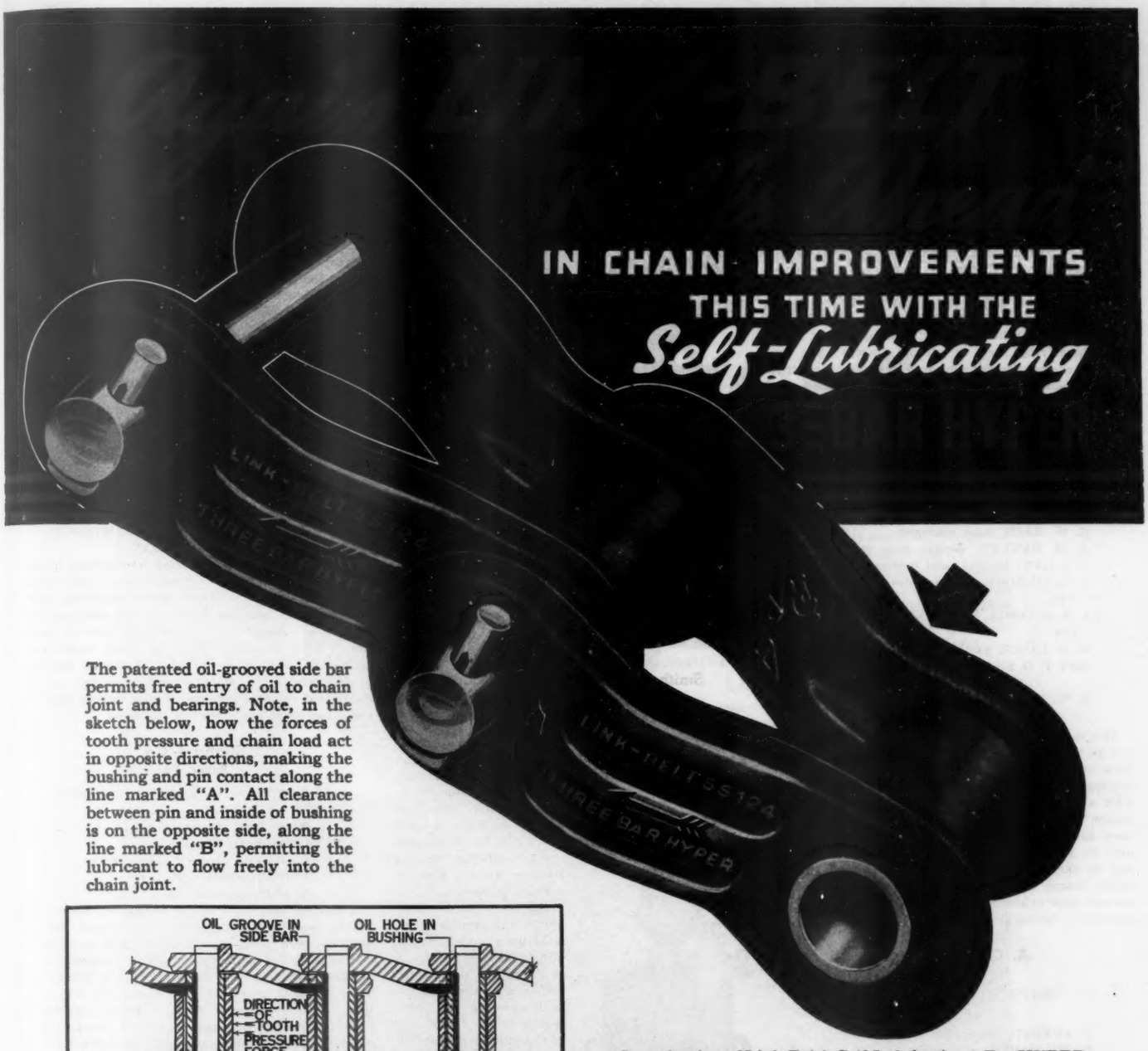
Sinclair Prairie Oil Co.
Tulsa, Okla.

99-100 and 112 Texas Building

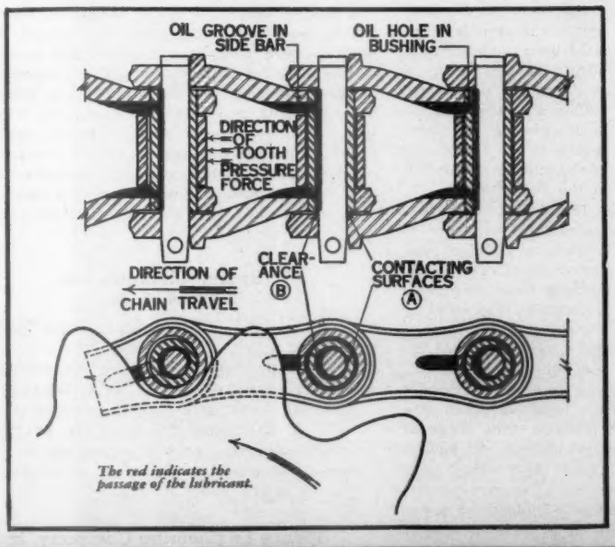
Sivyer Steel Castings Co.
Milwaukee, Wis.

121 Kansas Building

IN CHAIN IMPROVEMENTS THIS TIME WITH THE *Self-Lubricating*



The patented oil-grooved side bar permits free entry of oil to chain joint and bearings. Note, in the sketch below, how the forces of tooth pressure and chain load act in opposite directions, making the bushing and pin contact along the line marked "A". All clearance between pin and inside of bushing is on the opposite side, along the line marked "B", permitting the lubricant to flow freely into the chain joint.


OIL GROOVE IN SIDE BAR
OIL HOLE IN BUSHING
DIRECTION OF TOOTH PRESSURE FORCE
DIRECTION OF CHAIN TRAVEL
CLEARANCE (B)
CONTACTING SURFACES (A)
The red indicates the passage of the lubricant.

Introduction of Link-Belt's Self-Lubricating 3-Bar HYPER Chain marks another remarkable step in oil country chain improvement. It is SS-124, a drop forged sidebar, A.P.I.4 rotary chain, with an ultimate strength of 170,000 pounds. It is significant to chain users that this is another Link-Belt improvement . . . for Link-Belt not only pioneered the art of chain making but pioneered oil industry chain with the coming of rotary drilling, and has continuously made chain improvements as drilling speeds, depths and loads have increased. This major improvement means added durability to an already great chain having world-wide popularity through years of successful performance.

For more details ask for Folder No. 1854.

LINK-BELT COMPANY

Indianapolis, Houston, Dallas, Los Angeles, Philadelphia, Chicago, New York. Distributors in all fields. 8118

LINK-BELT CHAINS

S K F Industries, Inc.
Philadelphia, Pa.

67 and 68 Texas Building

In attendance

R. H. DeMOTT — R. C. BYLER
F. E. ERICSON — G. PALMGREN
A. H. SCHMAL — J. L. BRUSCA
H. L. GADDIS — A. H. DIXON
N. MILLER — O. NEUMER
W. F. WEIDNER — H. A. WESTWATER

The SAF pillow block equipped with the recently developed triple seal will take the center of the stage in the ball-and-roller-bearing exhibit. This pillow block is built especially for heavy duty. Its two halves, which simplify installation by permitting the bearing to be mounted securely on the shaft before assembly, are held together by two sturdy T-bolts. Two cast-iron split piston rings on each side a new bearing assembly protect the spherical roller bearing against abrasives. Inner rings serve as internal flingers while outer rings exclude foreign substance. Because these rings are not securely fastened to the shaft, they are free to locate themselves whenever shaft expansion occurs.

Skelly Oil Company
Tulsa, Okla.

46, 59, 47, and 58 Kansas Building

In attendance

Skelgas Co.:

G. W. BACH, sales manager
A. H. MENUET, Skelgas sales engineer
V. J. LAW, Skelgas sales representative
E. L. GILMORE, Skelgas sales representative
J. H. DeLORIA, Skelgas sales representative
W. D. LANCE, Skelgas sales representative
MRS. F. O. SHARP, cooking demonstrator

Skelly Oil Co. booth:

E. W. BERRY — C. C. RITCHEY
J. T. ALSPAUGH

This space is divided into two exhibits, one of which will be Skelgas model kitchen where actual demonstrations will be made of the use of Skelgas in cooking, heating, etc. There will also be in this part of the exhibit a typical installation of Skelly butane, with the butane being used alternately with Skelgas for the same demonstrations. The other exhibit will be given over to a display of the products manufactured and sold by Skelly Oil Co. The company has made several Skelly butane installations for individual manufacturers and other exhibitors for their use in operating their equipment during the exposition.

A. O. Smith Corp.
Milwaukee, Wis.

177-178-179-180 Oklahoma Building

In attendance

R. FURRER, Milwaukee, Wis.
T. M. JASPER, Milwaukee, Wis.
J. DILOT, Milwaukee, Wis.
B. F. HART, Dallas, Tex.
A. E. BUTTS, Tulsa
H. A. BOURNE, Houston, Tex.
C. B. TRUITT, Tulsa
S. A. CARPE, Houston, Tex.
K. L. CAMP, Houston, Tex.
T. W. PITZER, Tulsa
B. C. HEALD, Shreveport, La.
R. W. LADE, Dallas, Tex.
C. O. RELEPHORD, Dallas, Tex.
G. F. HENSON, Great Bend, Kans.
T. H. CREDEN, Corpus Christi, Tex.

The corporation will have an unusually dramatic and interesting exhibit. Many of the company's achievements in welding and cold working of steel will be on display with particular emphasis on the improvements thus brought about in various diversified products. Several of the exhibits will be in operation, so that the functioning or performance of the products can be studied. The principal displays pertain to the company's casing, Smithlined pressure vessels, Smithsteel automotive units, and Smith glass-lined tanks.

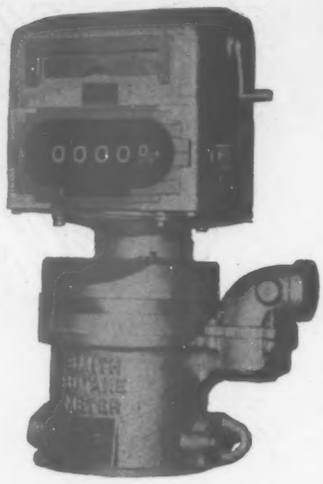
Smith Meter Company
Los Angeles, Calif.

83-84 Scientific and Technical Building

In attendance

ALLAN A. FLOYD, general sales manager
C. E. VALENTINE, JR., western sales manager
G. O. TATE, Tulsa district manager
R. N. WARD, Houston district manager

Exhibiting its full line of positive displacement petroleum meters. The exhibit has been prepared under the direction of the western sales office of this company in Dallas, Tex., and will especially feature the new line of high-pressure meters for pipe lines, oil wells, and refineries.



Two new models of liquid butane meters for tank trucks and also the new butane dispensing unit will be on display.

In addition, there will also be a complete line of tank-truck meters, a display of all types of counters, printers and other auxiliary equipment for use with meters.

Elaborate cutaway models will demonstrate the patented Smith rotary principle.

Smith Welding Equipment Corp.
Minneapolis, Minn.

Frick-Reid Building, Block 1

Perfect regulation of outlet pressures, cooler, cleaner gas, and complete elimination of the "hot belt" are features of a new line of two-stage portable acetylene generators announced by this company. These are known as Type "J" and are listed by Underwriters' Laboratories, Inc., and Factory Mutuals Fire Insurance Companies.

All water in the generator chamber is circulated by a nonmechanical air-lift device which simultaneously cools and scrubs the newly generated acetylene gas which results in the elimination of the customary hot belt at the water line.

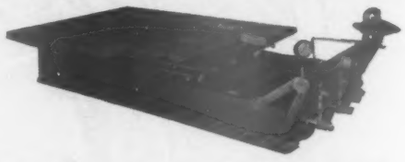
The size 14 ND carbide is fed into the water as needed by a large pressure-regulating diaphragm-type feeding mechanism. Generated acetylene passes through the water-circulating device through the hydraulic back-pressure valve and filter tank. Here it passes through another pressure regulator which may be set at the desired outlet pressure. This regulator has a large 8-inch diaphragm and controls the flow of gas so as to positively eliminate the fluctuation of pressure upon which the operation of every automatic acetylene generator is dependent. Simplicity of operation and portability are featured in these generators available in 15, 30, and 50-lb. sizes.

Sonner Burner Co., Inc.
Winfield, Kans.

58 Oklahoma Building and Block 7

Displaying the company's oil-field burner (illustrated); industrial or commercial burner, domestic heating burner and Sonner rock-wool insulation.

The oil-field burner, it is stated, provides positive control of the three major elements of gas combustion: Primary air, secondary air and gas. It burns with a short, intensely hot, blue flame, that lengthens very little with increased gas pressure. The application of secondary air, through the openings between gas slots, to both sides of each flame ribbon assures complete aeration of the fire within a few inches of the gas port. The burner provides the advantages of the



unit-type construction which has characterized the company's burners since the early days in the oil fields.

The company's domestic and industrial burners are built to meet the popular demand for medium-priced, flexible, efficient equipment for conversion installations. This burner is a product of long years of experience in conversion burner design.

Southwestern Bell Telephone Co.
Tulsa, Okla.

54-55 Scientific and Technical Building

South West Box Co.
Sand Springs, Okla.

18 Kansas Building

In attendance

W. W. JACKSON — J. H. WINDER
M. F. LA GRONE

Exhibiting a variety of boxes representing at least to a limited degree the various types of merchandise this company manufactures. Boxes exhibited display the sizes and printing which can be and are made for certain customers. This company tailors a box to the packing problem. Some of these boxes carry canned oil and represent many of the oil refineries of this area. The Mid-Continent area has its own corrugated shipping container factory where box engineers can work out attendant problems.

Spang & Co.
Butler, Pa.

44-45 and 50-51 California Building

In attendance

O. B. PIERCE, Odessa, Tex.
L. F. PORTER, Winfield, Kans.
E. B. IRVAN, Mount Pleasant, Mich.
F. J. SPANG, Butler, Pa.
C. E. SPANG, Butler, Pa.

A representative line of the company's cable-system drilling and fishing tools will be displayed. The exhibit has been designed as a comfortable meeting and resting place for those who attend the exposition.

Cable tools displayed are: Straight and twisted bits, boxes and pins, rope sockets, weldless jars, trip casing spears, hollow reamers, alligator grabs, combination sockets, full-circle slip sockets, Eclipse wire-line knife, collar busters, wire-line hitch, safety drilling-in head, tool set plug packer, three-step cone anchor packer, hook wall packer, lead and rubber mandrel plug, cement spray gun.

Spang Chalfant, Inc.
Pittsburgh, Pa.

Booths 219-220-230-231 Oklahoma Building

In attendance

C. R. BARTON — G. E. CLIFFORD
L. L. BRUNDRED — A. S. WEAVER
H. G. TEXTER — O. A. BERGMANN
J. A. KENNEDY — R. M. SYLVIS

Exhibiting various tool-joint connections on standard seamless drill pipe, as well as cut-out samples of extreme-line casing, and C.W. pipe.

Spence Engineering Company, Inc.
Walden, N. Y.

53 Scientific and Technical Building

In attendance

JOHN FALL, inventor of the Fall automatic pipe-cutting machine, will be present to demonstrate it

R. NOTVEST, Houston representative

Exhibiting the company's 1¼-in. Type ED pressure regulator and Type V strainer; 1¼-in. Type ET temperature regulator with adjusting handle and indicator; 2½-in. Type E2D7 low-pressure regulator, guaranteed to maintain the delivery pressure within 1 oz.; 2½-

REAL PULLING POWER

When this Truck Winch Chains Up With LINK-BELT Silverlink

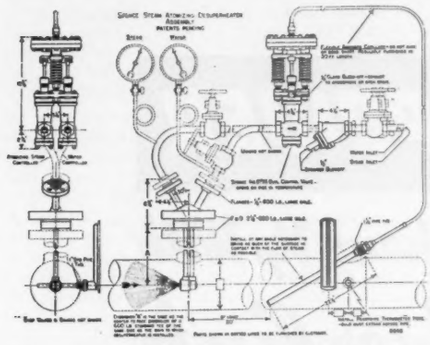
• In winch service, the burden on the chain is not the life-hours of actual work involved . . . but lifting and holding-ability, when the operator goes into action. Chain failure while hoisting or pulling heavy loads might be nothing short of hazardous. Here, therefore, is where high quality steels, fine design and dependable construction of chain come into the power winch picture. We are justly proud of the part played by Link-Belt Silverlink roller chain and sprockets in the popular power winches which TULSA WINCH CO. has in heavy-duty truck service throughout the world. It's a small amount of chain, per unit . . . but it's a big job!

LINK-BELT COMPANY

Indianapolis Houston Dallas Los Angeles
Philadelphia Chicago New York

Above: More than 100 Tulsa Winches stocked for shipment.
Below: Close-up of winch behind truck cab. 8014

in. Type ETD combined temperature and pressure regulator equipped with pressure and temperature safety pilots and Type V2 strainer; 2½-in. Type EP4 pump regulator, Series 60, for 600-lb. pump discharge pressure and Type V3, Series 60, strainer; Type D30



remote, electrically adjusted, pressure regulating pilot; low-pressure cutout switch, pipe-line service, designed for 1,500-lb. diaphragm pressure; No. 1 steam-atomizing desuperheater (illustrated).

In addition the Fall automatic pipe-cutting machine which will cut pipe so it will make a welded joint with any other size pipe at any angle.

Spencer Lens Co.

Buffalo, N. Y.

24-25-26 Oklahoma Building

In attendance

W. L. REYNOLDS

The new stereoscopic microscopes, the company believes, will be especially interesting to petroleum geologists due to sturdy dustproof construction, providing a large object field and high resolution of fine detail. Mechanical improvements facilitate focusing on either large or small specimens, and provide for quick changes in magnification. The objective lenses are held in a dustproof revolving objective holder for quick change of magnification. The seven different pairs of objectives and four different pairs of eyepieces available provide a total of 28 different magnifications, ranging from 6.3X to 144X. The angle between the axes of the two elements of the paired objectives is 12°. In the prism boxes, each line of light is bent 2° toward the center so that the convergence at the eyepiece is but 8°. This dual-convergence maintains the stereoscopic effect, yet, it is said, makes it possible to work comfortably for long periods without eyestrain.

Stereoscopic microscope No. 26

Sperry-Sun Well Surveying Co.

Philadelphia, Pa.

51-52 Scientific and Technical Building

In attendance

G. L. KOTHNY, vice president, Philadelphia, Pa.
DWIGHT C. ROBERTS, regional manager, Houston, Tex.
J. P. KLEP, sales engineer, Houston, Tex.
RAY BURHEN, development engineer, Houston, Tex.

Exhibiting SURWEL gyroscopic multishot surveying instrument, H-K directional magnetic single shot, H-K inclinometer, SYFO clinograph, polar core orientation, magnetic orientation of deflecting tools, K-K whipstock and retrieving sub.

New products: SYFO clinograph "go devil" protective casing using finger guides (patented) instead of spring guides. Instrument is properly centered moves faster as rubber fingers offer less resistance and bend in both directions, up and downward.

Nonmagnetic sub (patented) for accurately orienting deflecting tools at the bottom of the hole; can also be used to obtain directional single-shot records inside drill pipe. The sub contains two small magnets and provisions for seating an H-K magnetic single-shot instrument having a second compass in place of the inclination unit directly opposite the magnets in the sub. The relative azimuthal angle between the magnets and the direction of the face of the deflecting tools being known, a photographic record taken with the single-shot instrument indicates the magnetic north and also the actual position of the deflecting tool. When using the nonmagnetic sub for making directional records inside the drill pipe the second compass in the single-shot instrument is replaced by the inclination unit.

K-K whipstock and retrieving sub (patented). The outstanding features of the Keever whipstock are a tapering outer surface and a straight inner surface comprising a channel laterally curved to form side walls which extend throughout the total length of the inner surface, which is somewhat revolutionary to the whipstock design previously used. Confines the bit in the channel throughout the whole length of its travel against the inner surface, thereby preventing the rolling off of the bit. Makes the raising of the bit and the removal of the whipstock easy without binding or forming a wedge. The whipstock is removed from the hole by the Kothny retrieving sub (patented) which is arranged next to the bit, being provided with means expansible outwardly to engage the collar of the whipstock, by dropping a "go devil."

The Square D Company

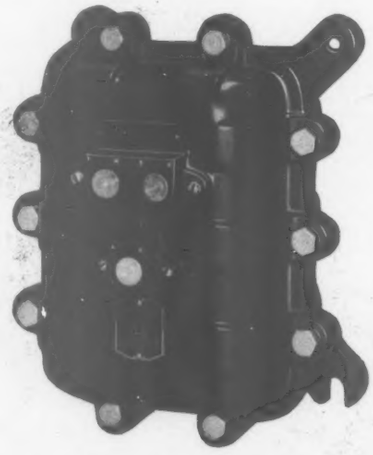
Milwaukee, Wis.

74-75 Oklahoma Building

In attendance

F. H. ROBY, Milwaukee factory representative
N. J. DRISCOLL, Chicago district manager
RAY WALKER, Little Rock branch manager
W. E. NEAL, Oklahoma City representative

Exhibiting a complete line of electrical equipment for current distribution and electric-motor control. There will be shown the latest models of power and



lighting panel boards, circuit breakers, industrial safety switches, pressure switches, and automatic starters and controllers; also the new Multi-breakeRs and Multi-breakeR panel boards.

Of special interest to the petroleum industry will be electrical equipment in safety enclosures to protect against water and dirt or for use in hazardous locations.

The L. S. Starrett Company

Athol, Mass.

18 Scientific and Technical Building

In attendance

W. J. GREENE, general sales manager
W. J. CLARK ROY BEARDSLEY

Exhibiting complete line of fine mechanical tools, dial indicators, hacksaws, and steel tapes.

Several new models of oil-gaging tapes will be shown for the first time as well as other materials for use in connection with the oil fields.

Sullivan Machinery Company

Michigan City, Ind.

Block 7, corner of Mid-Continent Drive and West Virginia Avenue

In attendance

F. W. COPELAND, president
J. W. HADDOCK, vice president
H. T. WALSH, vice president
J. B. MARTIN J. A. NOYES
C. L. DUNHAM, export manager
F. W. HARRISON H. E. BUTTERS
W. A. KREVIS G. E. SMEDBERG
E. R. JANSSON J. E. M. SCHULTZ
H. H. VANDERZEE

On display will be a new motorized drill known as the Sullivan 300, the latest thing in a complete portable drill for deep-structure testing, slim-hole production drilling, and drilling for electrical logging. It will have a capacity of 3,500 ft. as a slim-production drill.

It is arranged for kelly drive with 11⅝-in. table opening. The mast is 60 ft., built in two pieces of tubular seamless alloy steel with multiple sheave and catline blocks, safety-type combination rodman's platform and rod rack.

Power will consist of two Ford Mercury power units that can be compounded for draw-works drive. Mud pump will be driven by power takeoff from the truck engine.

The company will also exhibit its shock-absorbing attachment for beam-type pumping rigs, known as the "Alleviator," the Sullivan pneumatic pumphead, core-drilling bits and accessories, portable air compressors, pneumatic rock drills, and other air tools.

Surface Equipment Co., Inc.

Tulsa, Okla.

Block A

In attendance

WADE H. JAMES, JR.

Displaying drop-forge Safety "C" and disconnecting links, drop-forge combination clamps, cast-steel friction clamps and disconnecting blocks, roller-type hookoff, roller-type holdup and holddown, the SECO belt tightener and T-bar hookoffs, the improved roller rod carriers.

Synthane Corp.

Oaks, Pa.

56-57 Oklahoma Building

In attendance

F. C. McCAMLY ERNEST BERNARD

Products displayed will be Risonite explosive containers, Synthane bakelite-laminated sheets, rods and tubes, Synthane bakelite-laminated parts fabricated for pipe lines, refineries, booster stations, geophysical services and research departments.

C. J. Tagliabue Manufacturing Co.

Brooklyn, N. Y.

23 and 24 Scientific and Technical Building

In attendance

A. F. RUCKS, vice president and general manager.
E. D. WACKER, general sales manager
C. C. FAIRCHILD, director of research
L. VAN BLERKOM, division sales manager
R. M. WILHELM, division sales manager
A. G. KOENIG, sales engineer.
C. W. STAFFORD, sales engineer.

Displaying in a modern setting the latest TAG instrument developments.

Many new Celectray pyrometers and resistance thermometers will be shown for the first time. In this design an inertialess beam of light takes the place of the customary boom or pointer. The beam of light from the mirror galvanometer, in moving on and off a phototube, passes the "controlling edge" of a screen, thus operating relays which in turn control a reversing motor that drives the moving contacts of the Wheatstone bridge or potentiometer. It is said

Celectray self-balancing indicator

that this line of new instruments is noteworthy for their extreme simplicity, accuracy and speed, particularly in the multiple-point recorders. Among the new Celectrays that will be on display are:

Model V vibration-proof indicating controller.
Self-balancing indicating controller.
Self-balancing indicator with "in balance" signal.
Recorder-controller for throttling fuel heat.
Two-point indicating controller.
Multiple-point (up to 6) indicating controller.
Cabinet-type indicator.

A complete line of TAG pressure-spring instruments with many convenient refinements will also be prominently displayed. Beautifully finished in black enamel and chromium, the TAG recording thermometers and recording-pressure gages will include models with 9-in., 10-in. and 12-in. charts—all having exceptionally long pen travels. These instruments present many new features of design which include interchangeable, calibrated-tube system; removable stainless-steel pen-arm; precision-built capillary fountain pen; and numerous other advanced mechanical improvements.

In addition the TAG indicating and recording controllers are shown in both on-off throttling control models.

Many other instruments, including a complete line of TAG oil-testing instruments, etched-stem thermometers, hydrometers and industrial thermometers will be found in the booth. Among the newer instruments which will be shown are the TAG-A.S.T.M. gum stability bomb, the TAG-A.S.T.M. acid heat apparatus, the colorimeter stand and daylight illuminator, the new TAG-A.S.T.M. kinematic viscosity thermometers, and an assortment of A.S.T.M. thermometers with yellow back wide-bore tubing, and A.P.I. hydrometers of the improved streamline construction and with red indicator for marking position of scale.

Taylor Instrument Companies
Rochester, N. Y.

32, 33, and 34 Scientific and Technical Building

In attendance

FRED K. TAYLOR, vice president and industrial sales manager
ALBERT J. FLEIG, manager, petroleum sales
E. H. TRIPHAUS, manager, Tulsa office
R. E. CLARRIDGE and R. E. OLSON, manager sales engineering department, Rochester office
L. G. MARSH, D. J. CONDIT and H. A. BROWN of the Tulsa office

The new and complete line of Taylor Fulscope con-

trollers will be on exhibition. Adaptable for temperature, pressure, flow and liquid level, these new instruments, recording and indicating models, with single duty and, for recording models only, double-duty mechanism will be exhibited. Five standard types of the new Fulscope will be offered: fixed high sensitivity, adjustable sensitivity with automatic reset, adjustable sensitivity, adjustable sensitivity with Pre-Act, and adjustable sensitivity with Pre-Act and automatic reset.

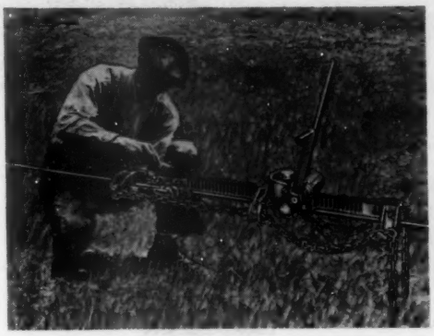
Templeton, Kenly & Co.
Chicago, Ill.

42-43 Texas Building

In attendance

J. B. TEMPLETON, president
P. H. McMANUS W. C. CORNU
BILL KREIER, of the Dallas branch

Exhibiting its new No. 522 emergency jack for oil fields, its No. 440 double-chain worm-gear pull-rod jack for repairing broken rods on deep wells, Simplex ad-



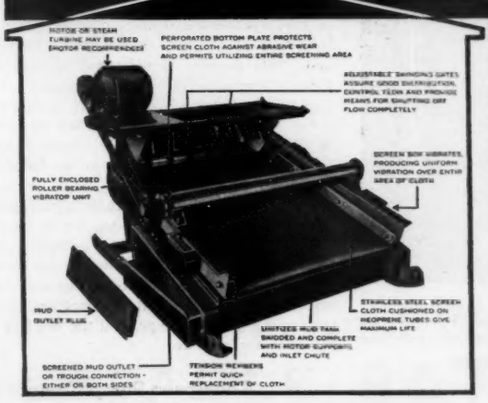
justable supports for field boilers, and other jacks and tools for oil-field use.

No. 522 is similar to the company's No. 310-A 15-ton emergency jack except that it is of 5-ton capacity and is designed for use where the additional strength of the No. 310-A is not required. Like the larger jack it tilts on its base, permitting jacking at an angle; has double-lever socket for close-quarter operation, and it lifts on the cap, on the corrugated toe, the auxiliary shoe which engages in a recess in the cap or at any intermediate point by using the 4½-ft. ⅞-in. chain fitted with grab hook, any link of which fits into cap recess. It has a lift of 14 in. and weighs 64 lb. complete as compared to the No. 310-A which weighs 108 lb. complete. They are used for rigging, pulling casing, shoving, skidding, pulling and for jacking mired trucks and lifting line pipe.

The new 7-ton No. 440 pull-rod jack with speed crank for fast repair of broken deep-well pull rods will be demonstrated. These jacks feature "one-man operation," improved one-piece slips easily applied and

PROFITABLE ROTARY MUD CLEANING with the LINK-BELT MUD SCREEN

NEW FEATURES • NEW DESIGNING • NEW ECONOMIES


MOTOR OR STEAM TURBINE MAY BE USED (MOTOR RECOMMENDED)
PERFORATED BOTTOM PLATE PROTECTS SCREEN CLOTH AGAINST ABRASIVE WEAR AND PERMITS UTILIZING ENTIRE SCREENING AREA
ADJUSTABLE SWINGING GATES ASSURE GOOD DISTRIBUTION, CONTROL FLOW AND PROVIDE MEANS FOR SHUTTING OFF FLOW COMPLETELY
SCREEN BOX VIBRATES, PRODUCING UNIFORM VIBRATION OVER ENTIRE AREA OF CLOTH
FULLY ENCLOSED ROLLER BEARING VIBRATOR UNIT
MUD OUTLET ELBOW
STAINLESS STEEL SCREEN CLOTH CUSHIONED ON NEOPRENE TUBES GIVE MAXIMUM LIFE
UNITIZED MUD TANK SHOCKED AND COMPLETE WITH MOTOR SUPPORTS AND INLET CHUTE
SCREENED MUD OUTLET OR TROUGH CONNECTION - EITHER OR BOTH SIDES
TENSION MEMBERS PERMIT QUICK REPLACEMENT OF CLOTH

• This new and improved Link-Belt mud screen will give you everything a driller could ask for. Advanced design...many new and exclusive features. Built to new standards in performance, efficiency and dependability.

Link-Belt was the first to develop and apply mud screens and is today still the pioneer in improving them. Send for Folder 1872.

LINK-BELT COMPANY

Philadelphia, Houston, Dallas, Los Angeles, Indianapolis, Chicago, New York. Sold by most supply houses.
S066-A

PROFIT BY OUR EXPERIENCE—

● As is the way in all pioneering enterprises, the oil industry has developed a vernacular all its own. It has developed distinctive phrases, novel expressions and many new words.

● Through the years, the Journal has adapted the style most frequently used in oil and gas operations to that conforming with sound grammatical practice. To make this information available to those who need it, the Journal has issued its

MANUAL OF STYLE

● Although numerous volumes have been written about style in other fields of endeavor, this book is the first practical application of this subject to the petroleum industry.

● Every writer of material relating to the oil industry can derive much benefit from this 128-page book. Available at $1.00 per copy. ($1.25 Foreign) postpaid. Send your order now.

THE OIL AND GAS JOURNAL
TULSA, OKLAHOMA

removed and fully enclosed powerful worm-gear mechanism to guard against dust and dirt.

Other popular oil-field jacks and the Util-A-Tool, a device for clamping parts to be welded, tensioning, bending pipe, or straightening bent structural members, pulling wheels, gears and pulleys and scores of other uses, will be shown.

Technical Oil Tool Corp., Ltd.

Los Angeles, Calif.

192-193 Oklahoma Building

In attendance

J. B. WOOD, president
J. V. ROBINSON, general sales manager
E. G. McCONNELL, Mid-Continent manager
R. L. CROOK, South Texas district representative
R. A. FEEMSTER, Oklahoma district manager
J. W. CULBERTSON, chief engineer

This corporation's exhibit will be considerably enlarged, and a number of new features will be exhibited, including a motion picture which will explain the technique of controlled vertical drilling and the action of the drilling tools underground. The Totco recorder for controlled vertical drilling will be shown in great detail, being traced through its manufacturing steps, both pictorially and in displays of parts. The go-devil equipment, which contains the Totco recording instrument, will also be displayed in the various forms required for running the recording instrument in the drill pipe according to all practical methods.

Texas Foundries, Inc.

Lufkin, Tex.

Booth 71 Kansas Building

In attendance

COL. CAL C. CHAMBERS, president.
HERMAN H. BRIEN, vice president and sales manager.
M. E. GORMAN
J. H. PARKER

Exhibit will consist of malleable castings for oil-field equipment.

Texasteel Manufacturing Co.

Fort Worth, Tex.

Block 3, between Texas and Pennsylvania

In attendance

A. J. ARMSTRONG	L. C. SCOTT
R. C. ARMSTRONG	J. F. FOSTER
JOHN PAXTON	R. A. CLAMPITT
WORTH DANIEL	W. A. DOREMUS
J. R. HOLDEN	E. S. HUDSON
T. KILLMAN	E. A. SCHAMBS

B. K. BUFFINGTON

The company's electric steel sucker rods will be displayed loaded on a specially designed truck, as is done in commercial practice, to demonstrate the company's rapid delivery service direct from its plant to oil lease. The company says it renders a distinctive service in this regard and advertises it will lay rods down on lease ready to run into well within 12 hours from receipt of order anywhere within a radius of 200 miles of its plant, and within 24 hours after receipt of order at any lease in the Mid-Continent field.

The company states its electric steel sucker rods are made of highly refined basic electric-furnace steels to exacting specifications of cleanliness and uniformity—

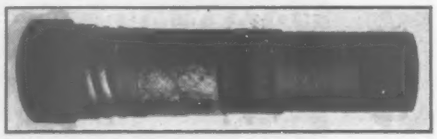
with a grade for every well condition—a complete line of electric steel rods.

Thermoid Co.

Trenton, N. J.

Oil Well Supply Co. Building

A complete improved line of rotary hose, covering all operating pressures and service conditions will be exhibited. The new hose features improved methods



Rotary hose No. 3520 for initial pressure of 5,000 lb.

in the precision-controlled, machine application of reinforcing wire which the company pioneered 5 years ago. This method, it is stated, assures absolute uniformity and a minimum of elongation or contraction. The line includes a hose in each of four constructions—for initial test pressures of 7,500 lb., 5,000 lb., 4,000 lb. and 3,000 lb., respectively. Each is available with Neoprene tube where oil is to be circulated through the hose.

Another important feature is a well known type of built-in coupling recommended for all types in the line. This new coupling, it is said, assures a smooth, uninterrupted flow, supplies strong reinforcements to the end sections, and eliminates coupling leaks and fail ures. The complete unit is considerably lighter than the usual detachable type, and the head of the coupling is easily replaceable.

Thompson Pump Company

Okmulgee, Okla.

In attendance

JAMES F. STEELY FRANK WILCOM
R. D. THOMPSON

The combination rod guide and paraffin scraper will be shown as well as the rest of the company's line of oil-well production equipment, including sand-proof, oil-well pumps in both the inverted and top holddown types, made in many sizes, and styles for any condition or depth of field. The exhibit will also show mechanical sand housing seating device that is recommended to be used with any type pump where there is a bad sand condition in the well. Among the many other articles featured will be giant crowns made of electric-steel castings and short and long Tom-alloy plungers of special alloy for single and double plunger pumps. Also will be shown dump type P. & T. pump for wells where there is lots of fluid with bad sand conditions. This pump is a large capacity pump and is adaptable to any depth well.

Fig. 201 A rod guide and scraper

Thornhill-Craver Co., Inc.

Houston, Tex.

221-222 Oklahoma Building

In attendance

CHARLIE THORNHILL M. P. LAURENT
HOMER THORNHILL J. E. LOEFFLER
KENNETH CRAVER T. W. WALKER
R. S. WARREN

Among the new products to be exhibited are high-pressure steel Unibolt couplings for butt and socket welding, a new Unibolt malleable tee with blanking plug for all types of medimum-pressure service, and the Unibolt "Flexi-ball" joint for hotary-hose connections. A high-pressure christmas tree with all Unibolt connections, including Unibolt-equipped valves, will be a feature.

Henry G. Thompson & Son Co.

New Haven, Conn.

90 Kansas Building

In attendance

T. E. HERFORD W. W. WAKEFIELD

These manufacturers of Milfordd hack-saw blades and band-saw blades will demonstrate power hack-saw blades in operation on a hack-saw machine.

Timken Roller Bearing Co.

Canton, Ohio

12-13-14-15 Texas Building

In attendance

H. H. TIMKEN, JR., vice president
W. B. MOORE, general manager, steel and tube division
C. H. McCOLLAM, assistant general manager, steel and tube division
DR. C. L. CLARK, steel and tube division
W. G. HILDORF, metallurgist, steel and tube division
D. S. KLIPPERT, sales engineer, steel and tube division
S. C. PARTRIDGE, general manager, industrial division
H. W. TRUMP, district manager, Dallas office, industrial division
S. M. WECKSTEIN, chief engineer, industrial division
W. F. ANDERSON, district manager, St. Louis office, industrial division
FRED REISER, JR., sales engineer, Pittsburgh office, industrial division
F. R. MacFADYEN, sales engineer, Houston office, industrial division

Elaborate display featuring the current "Miles of Smiles" campaign. The center section of the display will consist of a moving bearing on which is riding a replica of the "Miles of Smiles" girl. On each side of this center section will be shown an elaborate display of Timken bearings such as are used in oil-field machinery.

Trackson Co.

Milwaukee, Wis.

Block E

In attendance

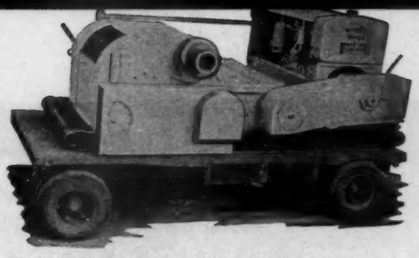
W. H. STIEMKE, general manager
L. E. DAUER, sales manager
L. M. CLARK I. W. KUNERT

PD4 Trackson pipe layer and Anglefiller

The following equipment will be on display:
Model MR5 Trackson pipe layer.
Model T2 Traxcavator fitted for slush-pit digging.
Model PD4 pipe layer with Anglefiller.

The Model MR5 pipe layer on a Caterpillar R5 tractor will be shown for the first time at the exposition. This is an entirely new machine of modern streamline design—incorporating every possible operating feature and refinement. All control levers are integral with the winches—convenient to the driver's seat, and operate with a minimum of effort. The load-line drum is

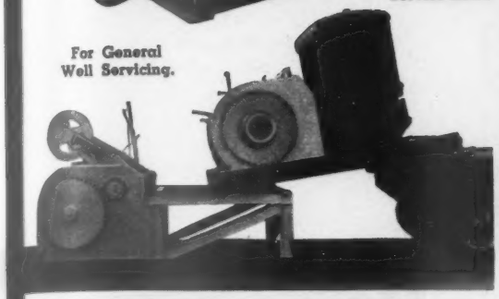
Another Model U-10 in Action



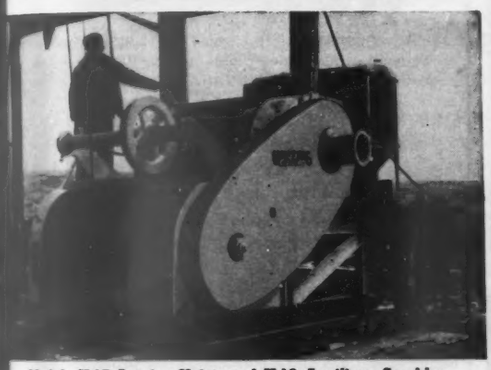
Model U-10 Single Engine hook-up can be mounted on truck or trailer.

Model U-10 Three Engine hook-up loaded intact. For deep drilling and exploration service.

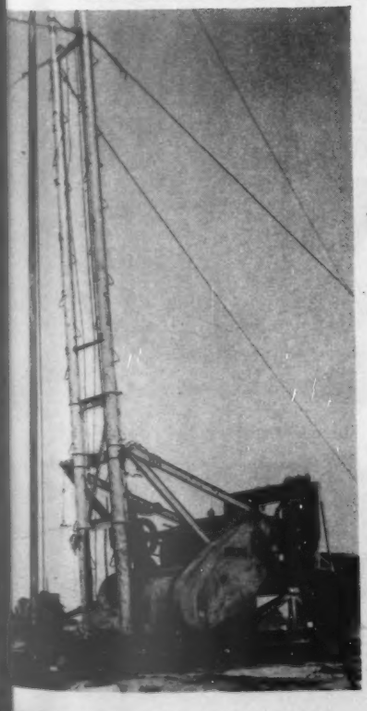
Model U-17 Service-Hoist.



For General Well Servicing.



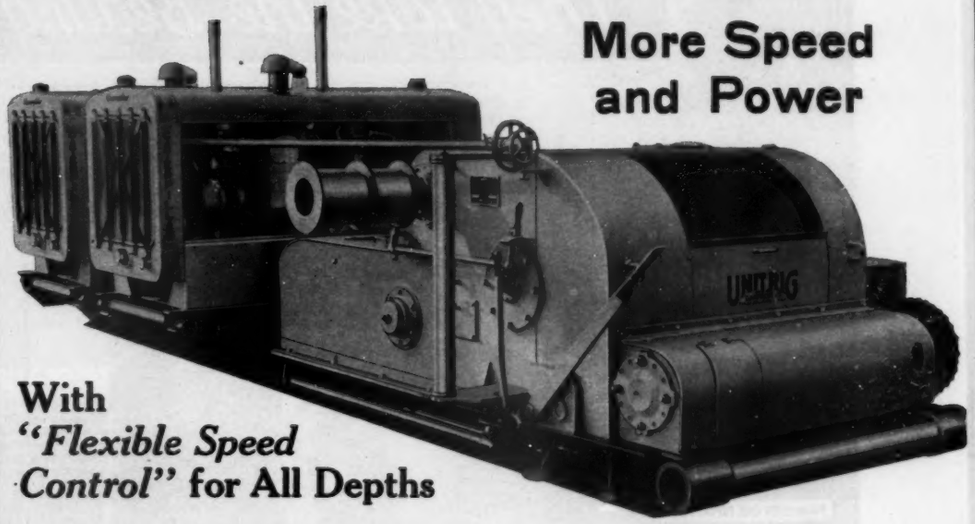
Models U-17 Service Hoist, and U-19 Auxiliary Spudder Unit Attached for Double Drum Service.



Model U-20 Telescoping Super Mast with Unit Rig U-17 and U-19 Combination in General Well-Servicing Use.

UNIT RIG

"Designed for the Job"



More Speed and Power

With *"Flexible Speed Control"* for All Depths

The Last Word in PORTABLE ROTARY UNITS

STRONG . . . SAFE . . . DEPENDABLE! FULLY ENCLOSED OIL BATH CHAIN DRIVE TRANSMISSION SYSTEM. Can be moved intact in one load.

The Model U-10 is available with UNIT RIG AIR-O-MATIC Friction Clutches, which eliminate every adjustment on the rig, with exception of a single brake equalizer. Features of the Air-O-Matic clutch include . . .

Simplicity of design. No toggles to wear. Only one motivating part. Forced air cooling. Should last indefinitely.

Finger touch control. Smooth operation results from cushioned engagement of clutch. No grabbing, regardless of skill of operator.

Unlimited capacity.

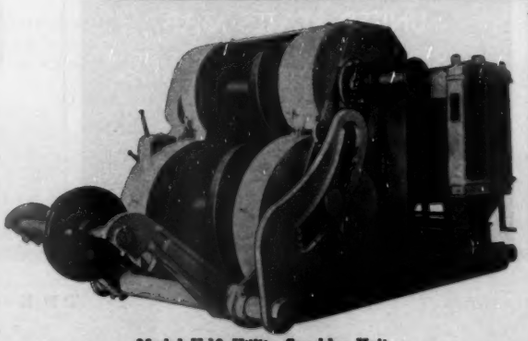
Designed, built, and proved by UNIT RIG for strenuous drilling operations.

On Exhibit at Tulsa - - - - Immediate Delivery

UNIT RIG & EQUIPMENT CO.

TULSA, OKLAHOMA

Export Representative: Petroleum Machinery Corp., 30 Rockefeller Plaza, N. Y.



Model U-19 Utility Spudder Unit.

Model U-16—Combination Rotary and Cable Tool Rig.

equipped with a "spring loaded" brake for safety and accuracy of control, while the boom line has a unique type safety ratchet synchronized with the transmission—both exclusive Trackson features.

The T2 Traxcavator or "Slush-Pitter," as this type machine is rapidly becoming known in oil fields, is also a new model. Various attachments, such as a bulldozer blade, Anglegrader, etc., make it adaptable to a wide range of pipe-line and oil-field work, such as clearing rights-of-way, excavating for well sites, building roads, constructing fire walls, etc.

Tokheim Co.

Cedar Rapids, Iowa

31-32 Kansas Building

In attendance

J. J. TOKHEIM, general manager

Exhibiting a unique fire prevention and vapor-control system for bulk, terminal and refinery-gasoline storage, together with mercury breather valves, testing units, tank gages and other oil-tank accessories.

Tretolite Co.

Webster Groves, Mo.

69-70 Scientific and Technical Building

In attendance

GORDON NEES	J. S. LEHMANN
JOHN V. JANES	FORREST L. KELLEY
H. L. BARTHELS	F. H. PENN
K. R. FARR	M. J. MULLALLY
C. C. ROGERS	L. C. CAMBLIN
WALTER CURRAN	JIM TUNE
HOWARD LAND	RUSS WATERS
CHARLES PRATER	W. N. EDDINS
AL GATES	C. L. DAVENPORT
OTIS DUNAFON	LEO GROUNDS
BOB SCIVALLY	BOB MOECHEL

H. V. KING

Featuring an electrically operated running display, showing various stages of emulsion treatment from well to stock tanks. The unique feature is the flow effect obtained through lines, tanks, etc., by electricity.

Triangle Blue Print Co.

Tulsa, Okla.

62 Scientific and Technical Building

The company was organized May 10, 1919, and started business in one room on the ground floor of Hotel Tulsa. Its entire business at that time consisted of making blueprints and maps. It has kept pace with the oil industry and in serving it has grown with it. From a small one-room blueprint shop, it has developed into one of the largest blueprint, photo reproduction and engineers' supply houses in the Southwest, serving not only Tulsa and vicinity but the entire oil industry.

The booth is a reminder to the oil industry and affiliated concerns that there is a supply house serving them in Tulsa where an engineer, geologist or draftsman can be completely outfitted. The store has just recently been enlarged and remodeled. The reproduction department now occupies a space one-half block long.

Trimont Manufacturing Co.

Roxbury (Boston), Mass.

115 Oklahoma Building

In attendance

JOHN H. NORTH, in charge

The new "Trimo-Alloy" pipe wrench illustrated will be featured. This, the company states, is the first and only pipe wrench ever to offer all the extra strength,

safety, and service of drop-forged heat-treated chrome-molybdenum, manganese and nickel steels—with a guarantee which covers the entire tool—yet sold at no increase in price.

Trinity Portland Cement Co.

Dallas, Tex.

85-86 Oklahoma Building

In attendance

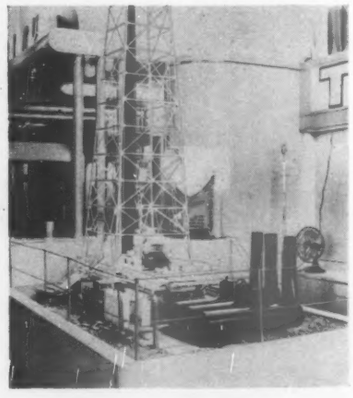
CEDRIC WILLSON, research engineer

JACK BARNES, petroleum engineer

H. J. SESSUMS, petroleum engineer

J. B. PARROTT, sales representative

Will display photographs of oil-well cement manufacturing operations and laboratory-testing procedure. The company will again rig up and operate its complete



Deep-well steam drilling rig

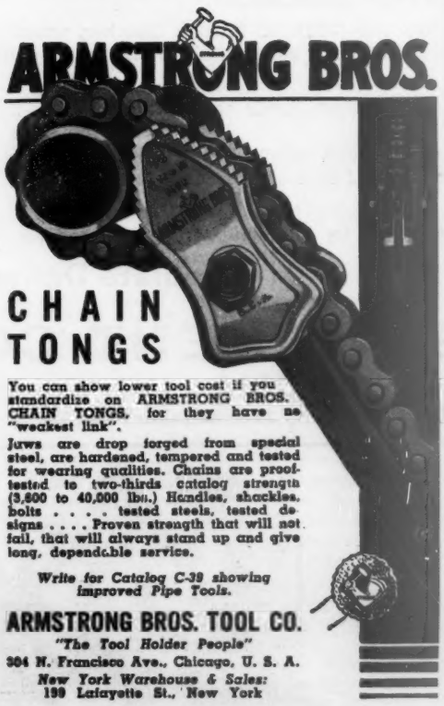
scale model of a deep-well steam drilling rig which has created so much comment and interest at previous shows.

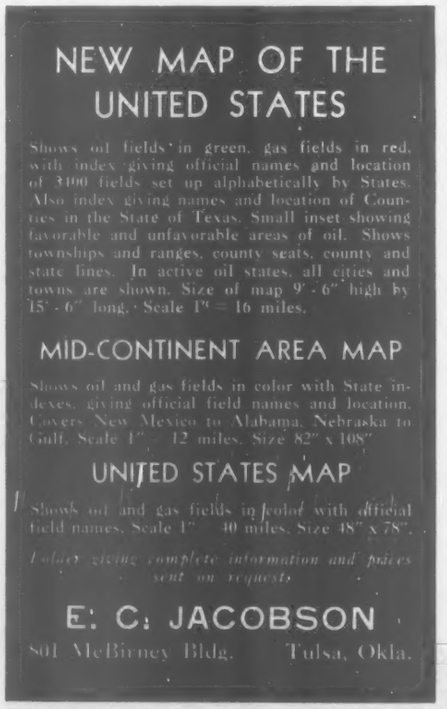
Tube-Turns, Inc.

Louisville, Ky.

132-133 Texas Building

They take the Beating
The most important job of an Engine in the oil field is to deliver maximum power without a falter or hesitation. MM engines have a perfect score on these points. They have been working hard and long for years under the most brutal service. The Power that braves the years and capable of standing the gaff season after season is truly built into MM Units. The economical power and tested performance of MM engines has the approval of experienced oil field engineers. You get more dependable power for every dollar when you buy MM Twin City Power Units.
WRITE FOR FACTS
Branches Near Everywhere
MINNEAPOLIS-MOLINE
TWIN CITY OIL FIELD ENGINES
MINNEAPOLIS - MOLINE
POWER IMPLEMENT COMPANY
MINNEAPOLIS MINNESOTA


ARMSTRONG BROS.
CHAIN TONGS
You can show lower tool cost if you standardize on ARMSTRONG BROS. CHAIN TONGS, for they have no "weakest link".
Jaws are drop forged from special steel, are hardened, tempered and tested for wearing qualities. Chains are proof-tested to two-thirds catalog strength (3,500 to 40,000 lbs.) Handles, shackles, bolts . . . . tested steels, tested designs . . . . Proven strength that will not fail, that will always stand up and give long, dependable service.
Write for Catalog C-39 showing improved Pipe Tools.
ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
304 N. Francisco Ave., Chicago, U. S. A.
New York Warehouse & Sales:
199 Lafayette St., New York


NEW MAP OF THE UNITED STATES
Shows oil fields in green, gas fields in red, with index giving official names and location of 3100 fields set up alphabetically by States. Also index giving names and location of Counties in the State of Texas. Small inset showing favorable and unfavorable areas of oil. Shows townships and ranges, county seats, county and state lines. In active oil states, all cities and towns are shown. Size of map 9' - 6" high by 15' - 6" long. Scale 1" = 16 miles.
MID-CONTINENT AREA MAP
Shows oil and gas fields in color with State indexes, giving official field names and location. Covers New Mexico to Alabama, Nebraska to Gulf. Scale 1" = 12 miles. Size 82" x 108"
UNITED STATES MAP
Shows oil and gas fields in color with official field names. Scale 1" = 40 miles. Size 48" x 78".
Folder giving complete information and prices sent on request.
E. C. JACOBSON
801 McBirney Bldg. Tulsa, Okla.

OIL WELL COSTS REDUCED WITH FOUR AND SIX-WHEEL DRIVE TRUCKS—FWD's

FWD six-wheel-drive truck with telescopic derrick servicing unit in over-the-road position. When in transit, the complete unit meets the legal requirements of most states.

J. J. Hailey, Corpus Christi, Texas, hauls heavy equipment to the oil fields safely with their FWD six-wheel-drive truck.

The world's largest fleet of oil-well cementing and acidizing trucks — FWD's. Halliburton owns more than 300.

Portable Drilling and Servicing Rigs Are Most Economically Transported

Oil field operators of four or six-wheel drive trucks universally testify to their unfailing dependability to "get there" under all conditions. With four or six-wheel drive every ounce of the truck and its load is converted into powered traction. Power on all wheels results in unbelievable performance. On the road or off the road FWD's are twice as sure of themselves —they are more dependable. Every wheel is a live puller, not an idle roller! When one axle fails to find traction, other axles will—you will get to location with the heaviest equipment regardless of road conditions.

In the FWD six-wheel drive truck the engine's power is distributed to each axle in direct proportion to its loaded weight —1/5 of the power to the front axle and 4/5 of the power to the rear bogie. This is accomplished by a free running torque proportioning center differential, an exclusive FWD feature assuring full powered traction on all six wheels for the maximum in performance . . . FWD has a complete line of four and six-wheel drive trucks for every hauling requirement, gasoline or diesel powered. Write for descriptive literature.

THE FOUR WHEEL DRIVE AUTO CO., Clintonville, Wis.
Canadian Factory: **Kitchener, Ontario, Canada**

VISIT THE FWD EXHIBIT—BLOCK "N"
International Petroleum Exposition
TULSA, OKLAHOMA
May 18-25, 1940
SEE THE FWD PORTABLE TELESCOPIC DERRICK UNIT ON DISPLAY

FWD six-wheel-drive truck with oil well telescopic derrick ready to pull a mile of tubing from an oil well taking a string of two sections at a time.

FWD TRUCKS

Tulsa Boiler & Machinery Co.
Tulsa, Okla.

20-21 Scientific and Technical Building

In attendance

H. V. CARTER — M. W. CLARK
D. E. FIELDS — C. B. GANNAWAY
T. M. HEGGIE — H. G. LEWIS
SAM E. LOY — S. L. SPENCE

The company manufactures natural-gasoline plant and oil-refinery equipment. It is also a general steel plate fabricator and does structural-steel work. Its products have been shipped to practically all of the oil fields of the United States and into Canada, South America, and South Africa. The equipment is known as "Tulsa Type" equipment. At the booth will be numerous photographs showing the "Tulsa Type" equipment after it has been installed and placed in operation in various fields. This company also manufactures pipe-line scrapers of the brush type, knife type and plug type for use in oil and gasoline lines. Several of these scrapers will be on exhibit. Another item in the booth will be a small stainless-steel tank, which will show its stainless-steel welding. Several stainless-steel bubble caps will also be on display. These bubble caps are used in the bubble towers that are manufactured by this company. Several interesting welding specimens will be on display showing the type of welding that this company is now doing.

Tulsa Machinery Co.
Tulsa, Okla.

Block U

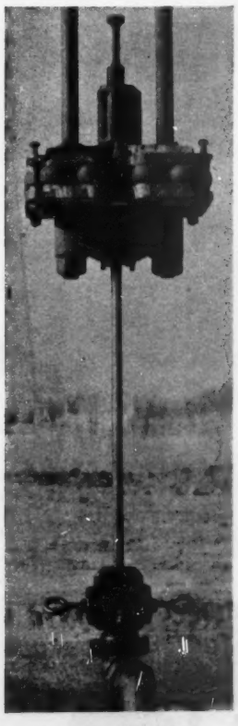
Tulsa Shock Absorber Co.
Tulsa, Okla.

Booth 5 Texas Drive

In attendance

J. F. EAGEN — J. SHAN MARTIN

A simple, practical device has been perfected and proven by Tulsa Shock Absorber Co., Tulsa. Illustration shown gives an idea of the simple operation, application and installation of the absorber. Barrel-shaped rubber cylinders are held together between steel plates. When load is at its peak the rubber cushions the load. It is easy to realize the big savings in rod jobs and down time from the cushioning by these barrel-shaped special rubber compound cylinders, which will not heat and are of long life. These absorbers are available in two styles: polish rod and beam pitman types; will fit any rod hanger or standard beam; very easy to install. They are now in operation on wells with weights from 18,000 to 30,000 lb. In St. Louis, Okla., one well had five to seven breaks a month. After installation of the Tulsa Shock Absorber there were no breaks for 180 days. In Tonkawa, Okla., one well had three to five breaks a month. After installation of these absorbers there were no breaks for 90 days. In Earlsboro, Okla., the owners of one well report that after the installation of the absorber they have eliminated about 90 per cent of their rod jobs. These three wells used the same rods before and after being equipped with these absorbers.



Tulsa Shock Absorber

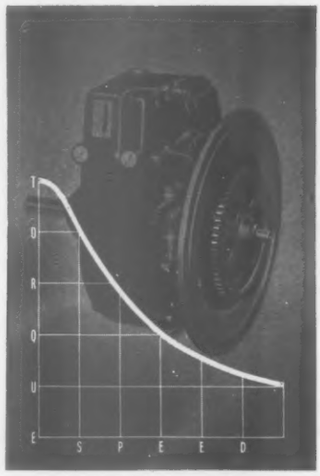
Twin Disc Clutch Co.
Racine, Wisc.

166-167 Oklahoma Building

In attendance

G. M. GUILBERT, vice president
SOREN SORENSON, vice president
N. F. ADAMSON, chief engineer
E. C. BILLINGS, assistant sales manager
JOHN H. BATTEN, general manager's department
R. M. SCHAEFER, manager of the hydraulic department
ROGER DeLONG, hydraulic department
W. L. DIXON, eastern district manager
J. B. JENKINS, Mid-Continent district manager
GLENN GIBSON, Dallas
PRESTON OLNEY, Dallas
W. JACKO, Dallas
E. J. CHRISTOPHER, Tulsa
J. F. CARTER, Tulsa

Headlining the exhibit will be the company's new hydraulic torque converter. Claimed as being capable of giving an internal-combustion engine true steam performance, a number of these units are already in operation on rotary and cable-tool drilling rigs and hoists and their performance indicates a widespread acceptance for this new type of power transmission.



New hydraulic torque converter

The exhibit will include power takeoffs, the Model CL and Model E heavy-duty, friction disk clutches, all widely used on various types of oil-field machinery. Complete descriptive literature on the torque converter and engineering bulletins on the entire line of power takeoffs and clutches will be available at the booth. The hydraulic torque converter is a hydraulic unit, which, when used in connection with an internal-combustion engine, permits constant speed operation of the engine regardless of the speed of the driven unit.

Tyson Roller Bearing Corp.
Massillon, Ohio

68 Oklahoma Building

In attendance

GEORGE C. McMULLEN, vice president
RALPH H. MAXSON, president
C. H. FRAZIER, sales engineer

The company's bearings have contributed to the performance of oil-field equipment and are used in drilling rigs, gas and steam engines, winches, pumping units and hoists. The cageless design, covered by patents, eliminates the cage and permits a full complement of load-carrying rolls. This develops maximum capacity, increased rigidity and longer bearing life. In oil-field equipment, subject to overloads and adverse operating conditions, the extra capacity gives better performance and, of course, cage failures are eliminated.

The company's bearings are used by manufacturers of national reputation in power shovels, tractors, trailers, road-building equipment, machine tools, steel mills, and many other heavy-duty applications.

Union Carbide & Carbon Corp.
Linde Air Products Co.
New York, N. Y.
Haynes Stellite Co.
Kokomo, Ind.

In attendance

R. L. LERCH — C. W. METZGER
F. M. ALEXANDER

Products and processes for oil field and refinery use will be featured by Linde Air Products Co., New York, and Haynes Stellite Co., Kokomo, Ind., units of Union Carbide & Carbon Corp.

Linde will conduct active demonstrations of machine flame cutting used in the fabrication of oil-field equipment, and flame hardening for imparting a hard, wear-resistant surface on sheaves, gears, shafts, rolls, and similar parts subject to wear. Multiflame tips used in welding pipe by the "Lindeweld" method and heavy-duty welding blowpipes for wrinkle-bending pipe will be shown. Also featured will be the gouging blowpipe for the controlled removal of surface metal in such operations as the collapsing of stub ends of steel tubes for easy removal without damage to the header castings. A representative display of Oxweld, Purox, and Prest-O-Weld oxyacetylene equipment and supplies, and Prest-O-Lite air-acetylene equipment will be shown.

Haynes Stellite Co. will emphasize the properties of wear resistance and corrosion resistance afforded by use of its alloys. A section of the exhibit will show oil-well drilling bits hard-set with Haystellite inserts and hard-faced with Haystellite rod for making fast, straight, out-to-gauge holes with long life between round trips. A second section will feature the use of Haynes Stellite alloy for hard-facing valve gates and seats for maximum efficiency and service life in refinery and oil-field operation. In addition, the resistance to various acids afforded by the Hastelloy alloys will be demonstrated by a series of boiling-acid dip tests.

Union Chain & Manufacturing Co.
Sandusky, Ohio

37-38 California Building

In attendance

E. F. EMMONS — PERRY CATRON
E. J. BUDER — NORMAN REIS
PARGNY McCUNE — E. F. KNERR
J. H. CASTLEBERRY

Displayed in an interesting manner is a complete line of the company's steel chains and sprockets used extensively by the oil industry including: A.P.I. oil-field chain, machine-finished roller chain, silent-chain flexible couplings and sprockets, cast and cut tooth.

Of particular interest is the new lock collar, applied to the A.P.I. oil-country chains, which, in place of cotter pins, is described as a most effective retaining device since it is virtually a one-piece detachable rivet head.

Union Wire Rope Corporation
Kansas City, Mo.

80, 81, 82, 129, 130, and 131 Texas Building

In attendance

M. G. ENSINGER, president
L. G. SCHRAUB, vice president, general sales manager
J. A. UNDERCOFLER, district manager, Tulsa
H. R. CUTLIP, district manager, Fort Worth, Tex.

Showing the oil fields and the electrical railroad system of delivering steel to the rope plant, rope to the oil fields, etc.

Unit Rig & Equipment Co.
Tulsa, Okla.

Hall of Science Way

Displaying several models of drilling and servicing units. Model U-10 with Twin Disc clutches is exhibited as well as a U-10 completely equipped with the company's own newly designed Air-O-Matic disk-type friction clutches. There will be Model U-16 double-drum

. . . at the 11th International Petroleum Exposition

Bypaths of Progress Beckon You to

.....BOOTH 84

KANSAS BUILDING

for a close-up view and

demonstration of the

New *Revolutionary* ★Remote Reading

LIQUID LEVEL GAUGE

Product of GUARDIAN ELECTRIC • Chicago

★ Modern invention has a surprise for you at Booth 84—Kansas Building—where the latest and finest principle of Remote Reading Liquid Level Gauge equipment is on operating display.

See it. Find out why the Guardian Gauge will operate on any current, and give you instantaneous and correct liquid level readings of dozens of different tanks—a foot—a mile—or miles away.

Unaffected by distance—temperature—specific gravity—extreme level changes—fluctuation of voltage—or failure of current supply. Performs with unerring accuracy in any type of weather. A new development in liquid level gauging that you can't afford to miss.

SOUVENIR GIVEN TO THOSE REGISTERING AT THE GUARDIAN BOOTH

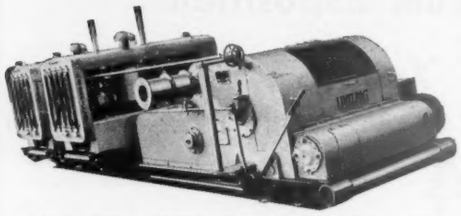
Illustrated Circular and Full Details Sent Upon Request • Write Today

GUARDIAN ELECTRIC

1621 West Walnut Street Chicago, Illinois

service hoist complete with spudder, a U-17 single-drum servicing unit, and a U-17 and U-19 combination drilling and servicing unit complete with Model U-20 telescoping mast.

The U-10 is the original model built by the company. It is a rotary-drilling unit with a capacity of from



2,500 to 6,000 ft. drilling with 4½-in. drill pipe when powered with engines of suitable horsepower. This streamlined, fully enclosed unit is so compact it can be handled in one truck load. It has the capacity to drill full-size hole. It has an oil-bath transmission with a system of friction clutches that permit rapid changing of speeds.

The U-10 Unit Rig with Air-O-Matic disk-type clutches, which further reduce adjustments and increase the drilling capacity, is a recent development. These clutches are of the air type and are not to be confused with air-controlled friction clutches. Air-O-Matic clutches were designed specifically for oil-field drilling and have no adjustments whatever. They are made heavy for heat absorption and are mechanically rugged. Provision is made for forced-air cooling, and on long hoisting trips when loading conditions on the clutch are unusually severe, one user reports "there was no time when he could not comfortably hold his hand on the clutch-operating elements." Perhaps the most appreciated feature is that no time is lost in making clutch adjustments. Since there are no chain adjustments whatever, only one-point brake adjustment, and 95 per cent of the moving parts are running in oil; the model approaches being foolproof.

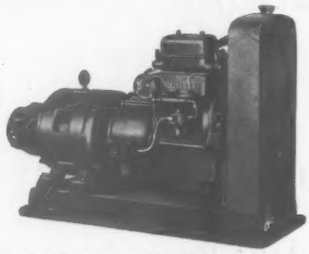
United States Motor Corp.
Oshkosh, Wis.

5 Kansas Building

In attendance

WARNER LEWIS, Oklahoma distributor

Showing two-cylinder diesel-electric plant (illustrated). Will also show a 400-watt, a 1,250-watt, and a 5-kw. gasoline or gas-type unit. The company manu-



factures gasoline-type units 400 watts to 75 kw. and diesel units from 3 kw. to 75 kw. It is exclusively in the electric-plant business and furnishes many sizes and types of units for the oil and gas industry, among others being special units for cathodic protection of pipe lines. Such units have been furnished to various pipe-line companies in sizes from 1 kw. to 5 kw.

United States Steel Corporation
Chicago, Ill.

143-150 (inclusive) Oklahoma Building

In attendance

American Steel & Wire Co.

R. M. BRUCE	W. P. HOWELL
R. D. BURRIS	R. T. MERRELL
P. T. COONS	MARSHALL OLDS
SEARS DOAN	C. L. RICHARDSON
E. T. EGGERS	J. M. WELCH
H. M. FRANCIS	C. F. WILEY

Carnegie-Illinois Steel Corp.

T. J. HILLIARD, general manager of sales, Pittsburgh, Pa.
R. KORSAN, JR., manager of sales, St. Louis, Mo.
PAUL VANDER LIPPE, St. Louis, Mo.
WALTER GROSS, St. Louis, Mo.
W. P. GULLIFORD, St. Louis, Mo.
KARL LUGER, stainless-steel division, Houston, Tex.

Cyclone Fence Co.

L. E. KING, district sales manager, Fort Worth, Tex.
J. DENTON, Tulsa
A. M. EATON, Houston, Tex.
J. D. HILL, Fort Worth, Tex.

Tennessee Coal, Iron & Railroad Co.

E. E. ALDOUS, manager of sales, Houston, Tex.
G. J. STEWART, assistant manager of sales, Houston, Tex.

Universal Atlas Cement Co.

I. F. BINGHAM, Houston, Tex.
R. LEE CHANCE, Houston, Tex.
J. H. CLARK, Waco, Tex.
HARVEY MARTIN, Tulsa

United States Steel Export Co.

H. E. JULIAN, direct sales division

Eight spaces will be used by United States Steel subsidiaries to display their products. The steadily increasing importance of stainless steel in the petroleum industry is recognized by a special display which will include a diorama showing one of the electric furnaces used for making stainless steel as well as a model of a modern bubble tower which illustrates many of the applications of stainless steel to the refining operations. Samples of stainless steel fabricated into bubble caps and trays and used as liners will be shown, as well as other products made from stainless sheet and strip.

Property protection will be illustrated by a large panel showing how Cyclone chain-link fence is used in the petroleum industry, with a complete assortment of the specially designed fittings.

Producers will be specially interested in the display of cements, built around a diorama showing an oil well and illustrating the use of Unaflo oil-well cement where cementing conditions are difficult or where high well

See Our Exhibit
INTERNATIONAL PETROLEUM EXPOSITION
TULSA
MAY. 18-25

See You Saturday
BOOTH 21
Kansas Building

. . . with information guaranteed to make this Show a success for any producer interested in lifting more oil for less money.

WARNING

We will not be responsible for dissatisfaction created by our exhibit in the minds of producers who have failed to standardize on JENSEN Units. JENSEN Pumping Equipment has been used by successful producers for more than 20 years.

JENSEN
BROTHERS MANUFACTURING CO.
Coffeyville, Kansas, U. S. A.
EXPORT OFFICE: 50 Church St., New York

HOMELITE
Portable Generators
can do all this work for You...

Furnish Brilliant Floodlight for Night Work

If you have any night work or emergencies, a Homelite Portable Generator will pull you out of a hole. Weighing only 83 pounds—including the built-in gasoline engine that runs it—a Homelite can be rushed easily to any out-of-the-way spot. Generating 1800 watts, it will operate several brilliant explosion-proof lamps—giving your men plenty of light to work rapidly and without danger.

Operate Time-Saving Electric Tools

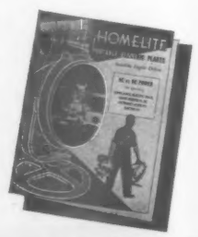
A Homelite will give you enough power to operate several electric tools—valve grinders, saws, drills, hammers, etc. You can service your lines better. You can save time on any job with an extremely simple setup. You can use your generator on day jobs as well as nights.

Run Radios and Delicate Instruments

The automatic close voltage and cycle regulation of a Homelite makes it usable for operating sensitive geophysical and well-surveying instruments. Moreover, a shielded and filtered Homelite makes a handy power plant for portable radio communication sets.

Send for Complete Bulletin

Gives full information on several A.C. and D.C. models. Shows sizes, capacities, etc. Shows how thousands are getting good dollar-saving use out of these handy, rugged all-weather units.



HOMELITE
CORPORATION
705 Riverdale Ave. PORT CHESTER, N. Y.

temperatures exist. Other cements included in this section of the booth will be Universal and Atlas portland cements, Atlas High Early, Atlas white and Atlas waterproofed white cement, together with Lumnite cement for use in corrosion-resistant concrete, shallow well cementing, refractory concrete and overnight concrete.

In addition to the customary mounted samples of Tiger brand wire ropes and electrical wires, long samples will be on display so that visitors may examine them closely and test their flexibility.

The increasing severe service to which steel is being subjected in the petroleum industry has emphasized the need for special steels, and accordingly the booth will carry a special display of U.S.S. carilloy steels, showing how these controlled quality alloy steels are being used in oil-field tools and equipment. Metallurgical and sales engineers well versed in the qualifications and applications of the wide range of products in this comprehensive display will be on hand at all times to discuss problems with visitors. Ample seating space will be provided.

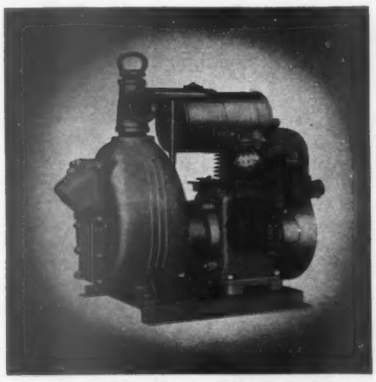
Cooperating in this joint display will be American Steel & Wire Co., Carnegie-Illinois Steel Corp., Columbia Steel Co., Cyclone Fence Co., Scully Steel Products Co., Tennessee Coal, Iron & Railroad Co., and Universal Atlas Cement Co., all subsidiaries of United States Steel Corp.

United Supply & Manufacturing Co.
Tulsa, Okla.

Southeast cor. California Building

In attendance

H. B. GUTELIUS — H. W. DENTON
C. J. HALLORAN — L. L. HALL
F. P. THIEMAN — L. E. WILEY
P. G. LATHROP — A. W. GIBSON
C. S. HERNDON — B. S. VAVRA



Model 10ML self-priming centrifugal pumping unit

Exhibit will include four sizes of double-reduction twin-crank pumping units, the 5, 7, 10, and 20-hp. sizes. One size of the single-reduction twin-crank pumping unit will be exhibited, the 45-hp. size. One each Buda, International, Le Roi and Waukesha multicylinder engines will be shown, in addition to the two-cylinder vertical Titusville 7½ by 10-in. two-cycle convertible engine.

The quick-priming, nonclogging line of Sterling Machinery Corp. self-priming centrifugal pumpers will be shown. Its open-trash-type impeller, self-cleaning pump case, improved grease seals, with wear-resisting close-grain nickel semisteel construction, the company states, makes this line dependable, rugged and efficient, assuring a proper balanced pumping unit for every purpose. E. M. Smith rotary hose, wire-line guide, tubing and drill-pipe protectors are included.

Other material exhibited are Crosby wire-line clips, Lovejoy L-R flexible couplings, O-I-C valves, D. O. James gear reducers, A. Leschen & Sons wire rope and Union Chain & Manufacturing Co. products.

Universal Carloading & Distributing Co.
New York

22 Kansas Building

In attendance

AUSTIN E. BOYD — R. T. WEAVER
KENNETH BAKER — BERT WILSON

To better serve the oil industry is the aim of Universal Carloading & Distributing Co., a division of the United States Freight Co., New York, under the management of F. N. Melius, president, and C. A. Waltz, vice president, maintaining branch offices in principal cities, and specializing in less than carload-lot shipments. Connecting line carriers serve the organization in practically every American community, and the company adds that responsible firms act as agents in all foreign countries, besides which it conducts offices in London and Honolulu. The company extends patrons, friends, and the entire oil fraternity a most cordial welcome, inviting them to visit its interesting exhibit.

Universal Engineering Co.
Los Angeles, Calif.

189-190 Oklahoma Building

Vapor Recovery System Co.
Compton, Calif.

80-81 Oklahoma Building

In attendance

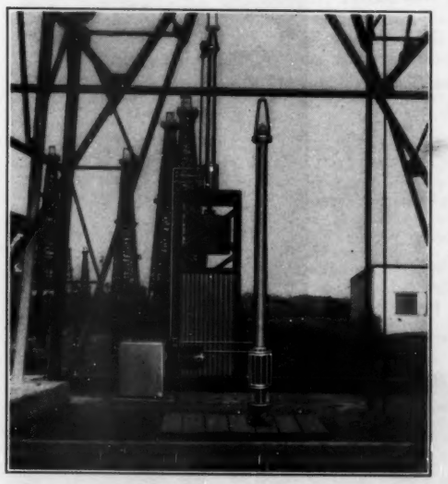
FRANK V. LONG — ALFRED KATZENBERG
FRANK M. HOLLOWAY — JOE M. GREENLEE

In addition to its complete line of standard tank fittings, the company will exhibit a working specimen of its new Fig. 410 gastight gaging and sampling unit with which an operator can now gage liquid levels take spot or running samples and temperatures, without losing any gas or pressure. The design of the unit permits chalking or pasting the gage tape at any point when used in colorless fluid and a window is provided to view the cut on the tape. The sampler and temperature bomb is interchangeable with the plumb bob and is opened or closed at any desired level by a simple operation, the sample being sealed in the pressuretight bomb for transportation to the laboratory. The entire unit is available of various materials for any working pressure or corrosive condition.

Vickers, Inc.
Detroit, Mich.

Block 3

Long pumping strokes, of 10 ft. and 15 ft., are provided by the company's pumping unit, particularly adaptable to deep wells and wells having large amounts



Hydraulic pumping unit

of fluid to lift. A 120-in. stroke unit of the hydraulic-weight counterbalance type is capable of lifting up to 175 bbl. per day from 5,000 ft. A unit will be in operation.

One feature of the long-stroke operation and smooth hydraulically controlled reversal, the company states, is the great increase in rod life, even on troublesome "problem wells," demonstrated by more than 2½ years of field operation. Standardized high-pressure hydraulic pumps and valves identical with those used on giant Vickers equipped automotive presses and high-production machinery are engineered into the oil-well pumping unit.

The company will display other hydraulic devices becoming more generally used in the oil industry. For instance, a variable-speed hydraulic-power transmission unit, manufactured in sizes ranging up to 200 hp., and used in all manner of rotary variable-speed drive applications where positive and rapid speed or torque changes are needed. These transmissions are reversible and supplied with many types of automatic, remote, or manual controls for speed variation. The company's pumps for high-pressure oil service will be displayed. Other hydromotive-control products shown include relief valves, flow-control valves and fluid motors. Factory-application engineers will be in attendance.

Victaulic Company of America
New York

90 Texas Building

In attendance

M. C. HUTCHINSON, general manager
R. W. ENGLISH, vice president
GEORGE N. LaMONT, Mid-Continent distributor
GENE McINTYRE, West Coast sales manager

Victaulic couplings are well known to the oil industry, having been used in every branch from oil well to tank wagon for more than 15 years. Exhibit will feature the 1940 advancements in the company's line, including new coin-pressed metal housings, synthetic gaskets (no rubber), and genuine full-flow pipe fittings.

Several motor-driven operating models under pressure and vacuum assimilating field conditions will demonstrate leak-tightness, flexibility, and automatic provision for contraction and expansion.

Viking Pump Company
Cedar Falls, Iowa

Booth 7 Kansas Building

In attendance

R. C. WYTH, sales manager

Warner Lewis Co., Tulsa

Oklahoma distributors

WARNER LEWIS — R. W. MILLER
J. P. COX, JR.

Featuring the newly designed Fig. 120 and Fig. 124 truck-mounting units, recommended for gasoline transport, butane transfer and general utility pickup and transfer service. Fig. 124 units are equipped with weatherproof, over-sized thrust bearings which eliminates endplay and resultant wear inherent with older-

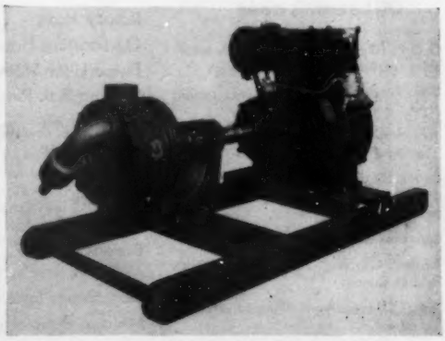


Fig. 120, truck-mounting pump, together with direct-connected gas engine, mounted on arc-welded steel base

type pumps. Fig. 37, Model EAWH, high-pressure pump will also be direct-connected to Le Roi's new Model D-71, air-cooled engine. Other equipment will consist of high-pressure hydraulic pumps, hand-drive pumps and the improved Simplex tank gage.

Another power unit shown is Warner Lewis Co.'s Model L-ZR, 90 g.p.m., 4-hp. pickup unit, which will be circulating oil through a typical pipe-line hookup in connection with Ralph N. Brodie Co.'s X-71, 100-g.p.m. meter, air eliminater and strainer, and Bristol's newly developed remote reading rate of flow indicator. This unusual assembly of allied products sold by Warner Lewis Co. will be equally interesting to pipe liners, refiners, and production engineers.

Visco Products Company
Houston, Tex.

73 Kansas Building

In attendance

HOMER T. LAMB, JR. — GEORGE B. TURNER
CHARLES NELSON — V. C. BOWMAN
O. B. SCHOENFELD, JR. — F. H. THORNE
W. H. KIRKPATRICK — C. F. SPANGLER

Visco oil-treating chemicals are featured in the exhibit. These products were introduced to the oil trade in 1931 after several years of research and actual field experiments directed to the development of an entirely new type of treating chemical for the breaking and resolution of oil-field emulsions; commonly referred to as "b.s." oils in the field production of petroleum. Visco oil-treating chemicals were the first departure from the soaps, water-softeners, and sulfuric acid-treated fatty oils then in general use for this purpose, and have received wide and enthusiastic acceptance by oil producers. Instead of being compounded by mixing various substances in an effort to produce effective reagents, the active principle in each Visco formula is a complex synthetic chemical especially made in a modern plant under a system of rigid chemical control. The company has its own especially trained sales, service, and technical organizations which cooperate with users of their products to keep their oil treating costs down, insure maximum results, and prevent waste, tank bottoms, etc.

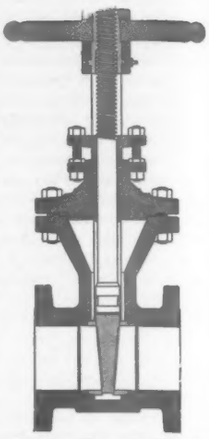
Henry Vogt Machine Company
Louisville, Ky.

151 and 152 Oklahoma Building

In attendance

G. A. DAEUBLE, JR. — W. A. JACKMAN
W. S. CANNON — OTTO C. ALPIGER
J. L. MASSIE

This exhibit will feature equipment covering the company's entire line of drop-forged steel valves, fittings and flanges. New equipment developed since the last show will be a line of union bonnet meter and general-purpose globe and gate valves and a new line of 150 and 300-lb. American Standard gate valves.



Section through 150 and 300 lb. A.S.A. gate valves

The union bonnet line is available in gate and globe types. The gate valves have ground joint, inside screw stems, renewable seats and slotted type, solid wedges. These are especially suited for general gate-valve service at high pressures and high temperatures. The globe valves have ground joint, inside screw stem and a one-piece needle - point stem. These valves, it is said, are especially suited for dependable regulation in meter and gage lines at high pressures and high temperatures. These valves are available in sizes from ¼ to 2 in. of carbon steel with stainless steel trim or all-stainless steel as required by the particular operating conditions.

The new line of drop-forged steel 150 and 300-lb. American Standard gate valves feature the following: Body and bonnet flanges are of the round bolted type and there is a full port opening through the valve. Flanges are forged integral. All valves have renewable seat rings of the rolled-in type, slotted type, solid wedges and a gasket or ring joint between the body and bonnet. These valves are available in 2, 3, 4, 6 and 8-in. sizes with stainless steel trimmings regularly furnished.

Vortox Manufacturing Co.
Claremont, Calif.

3-256 Oklahoma Building

In attendance

L. A. THOMPSON, Mid-Continent and Gulf Coast representative
O. A. LOHRKE, eastern representative
JAMES M. JUDY, sales manager

Showing the latest oil-bath air cleaners released since the 1938 Tulsa show. A principal feature will be a new multiple-cup cleaner, particularly well suited for oil-field installations. The size shown will be for smaller engine sizes which will have a capacity up to 600 or 700 cu. ft. per minute. Another feature will be a special demonstrator or working model showing construction and operation.

Wackman Welded Ware Co.
North Kansas City, Mo.

42 Kansas Building

Wall-Colmonoy Corporation
Detroit, Mich.

59 California Building

In attendance

A. B. KERN, Tulsa branch manager, in charge
L. V. LaROU, Detroit factory manager
F. G. JONES, Chicago branch manager

One of the many interesting demonstrations will be that of the Wall-Colmonoy Corp., manufacturers of Colmonoy hard-surfacing materials and overlay metals. There will be a continuous demonstration showing the actual application of the Colmonoy alloys, using both gas and electric methods. The demonstration will be largely devoted to applications on equipment used in various branches of the petroleum industry.

In addition to the demonstrations there will be exhibits showing finished parts such as pump rods, plungers, pump sleeves, wash pipes, sucker-rod bushings, tubing collars, etc., as well as the complete line of Colmonoy alloys, whose outstanding ability to resist wear and corrosion is effecting tremendous savings in the petroleum industry.

Wall Rope Works, Inc.
Tulsa, Okla.

27 Texas Building

In attendance

HAROLD M. WALL — J. LLOYD DITTMAN
GERALD C. TERRY — JAMES A. ENGLAND
ARTHUR A. THOMAS

Exhibiting all types of the company's oil-field cordage

To load or unload for *less* per barrel *use* Paranite-G.O.P. Oil Loading Hose

You not only save through the service you get from Paranite-G.O.P. Oil Loading Hose, but cut down dock time. Some of the first lengths made (Manhattan was the first to use synthetic rubber in oil loading hose) are still in use after eight and nine years of service. The even, uniform section of the interior allows full capacity and working pressures up to 150 lbs.

Paranite-G.O.P. Oil Loading Hose is available in smooth or rough bore and with aluminum reinforcing wire and aluminum bandless, leakless fittings. May also be had with either metal outside armor flush with rubber cover or heavy, abrasion-resisting rubber cover.

Read the Seven Construction Features* and see why you get so much more service from Paranite-G.O.P. Oil Loading Hose.

Send for Bulletin 6806-A which describes construction features and service applications for all types of Paranite-G.O.P. Hose—including tank car, tank truck, rack, airport, gasoline pump, etc.

***7 Construction Features of Paranite-G.O.P. Oil Loading Hose**

1. G.O.P. (Gas-Oil-Proof) Synthetic Inner Tube—actually oil-proof.
2. Even Interior Passage—assures rapid flow.
3. Two Heavy Round-Edge Steel Spirals—prevent crushing.
4. Strong Square-Woven Duck Plies—afford maximum elasticity and resistance to all hose stresses.
5. Safe Flexibility.
6. Smooth Oil and Abrasion Resisting Rubber Cover.
7. Type "C" Leak-Proof Fittings built into the hose.

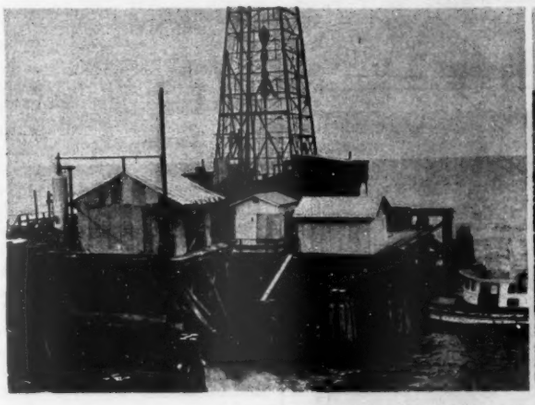
Other Products FOR THE OIL INDUSTRY

Rotary Hose
Oil Loading Hose
Piston Liner Sleeves
Stuffing Box Rings
Steam Hose
Water Hose
Fire Hose
Air Hose
Brake Lining for Draw Works
Paranite-G.O.P. Tank Car & Truck Hose
Slush Pump Intake Hose
Molded Rubber Products

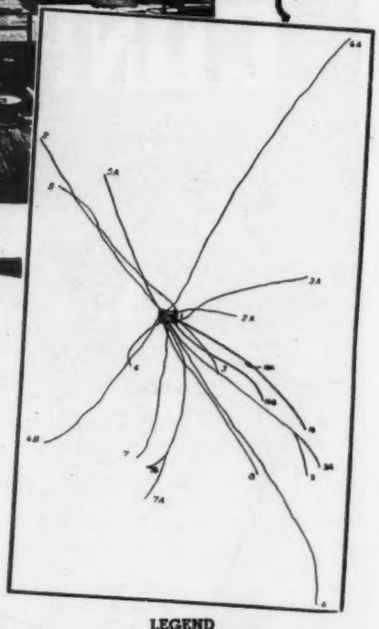
THE MANHATTAN RUBBER MFG. DIVISION
OF RAYBESTOS-MANHATTAN, INC.
Executive Offices and Factories, 72 Townsend St., Passaic, N. J.

THE OUTSTANDING DIRECTIONAL DRILLING JOB IN HISTORY

19 ~~Ten~~ Holes Drilled From One Marine Location



General view of drilling dock (left), and mud ditch and tanks on marine directional-drilling job (right)



THE OIL AND GAS JOURNAL APRIL 25, 1940

...A FULLGAGE ACCOMPLISHMENT

HERE ARE THE TOOLS THAT DID IT!

FULLGAGE Deflector
Pat. 2194267

Excellent for drilling into dips and faults... unexcelled for getting off soft plugs. Drills full-gauge hole.

FULLGAGE Deflecting Bit
Pat. 2196940

The industry's No. 1 directional drilling tool. May be reset as often as required without coming out of hole. Drills full-gauge hole.

FULLGAGE Orienting Sub

The patented magnetic sub that provides accurate positioning of the deflecting tool after it reaches bottom.

FULLGAGE Orienting equipment—Patent No. 2147544.
Method licensed under Patent No. 2120670.

Drilling 19 holes from a single location, 10 of them producers, thereby exploring an area one mile square on a 20 acre spacing basis, is by far the largest directional drilling job ever attempted. Drilled total depths of the wells ranged up to 9,394'. Horizontal displacement ran as high as 2,417'. Scene of the activity was in the Creole field in the Gulf of Mexico, off the Louisiana coast, where the construction of separate drilling piers would have been extremely costly.

Interested operators are invited to read the full account of this unique directional drilling job which appeared in the April 25 issue of The Oil and Gas Journal.

LEGEND

Well No.	Horizontal displacement	Max. angle	Any angle
1	vertical		
2	1,400	23° 00'	16° 30'
2A	400	9° 00'	6° 30'
3	490	8° 30'	7° 00'
3A	1,000	17° 30'	14° 00'
4	470	10° 00'	8° 45'
5	1,287	31° 45'	25° 00'
5A	1,070	16° 00'	10° 15'
6	2,417	44° 00'	31° 00'
6A	2,412	30° 00'	23° 45'
6B	1,330	19° 00'	13° 45'
7	1,115	12° 30'	11° 45'
7A	1,340	17° 30'	13° 45'
7B	1,067	12° 00'	7° 30'
8	1,273	14° 30'	10° 30'
9	1,550	31° 00'	20° 45'
9A	1,807	23° 00'	10° 45'
10	1,160	17° 00'	12° 00'
10A	28	10° 00'	8° 00'
10B	809	11° 00'	8° 15'

To most operators in the Gulf Coast, FULLGAGE Deflecting Tool Co. needs no introduction. This company perfected full-gauge deflection which requires no after-reaming and has speeded up directional drilling by eliminating costly round trips of the drilling string. FULLGAGE also pioneered and perfected bottom hole orientation, a technique which is now being widely copied. It assures you that the deflecting tool is pointing in the desired direction at the bottom of the hole. This orienting technique has proved to be the fastest, safest and most accurate available.

Write for complete details on FULLGAGE tools and service, which are designed to handle every type of deflection work from simple side-tracking jobs to the most difficult directional drilling operations.

FULLGAGE
DEFLECTING TOOL CO.

HOUSTON, TEXAS

2004 Crawford St. Telephone C-7024

If no answer call J-23976

used throughout the world. Of interest to rotary men Wall "Black-Gold" cat lines three and four-strand, specially constructed to meet the demand of the modern rotary rig in all fields. Various types and sizes of Wall manila spinning rope and derrick lines will also be displayed. Of interest to production men and cable-tool contractors both in the Mid-Continent and eastern fields will be the standard of quality, the company's world-famous "Walk-Laid" bull ropes. Of particular interest to eastern field men in addition will be the company's drilling cable.

Walworth Co.
New York

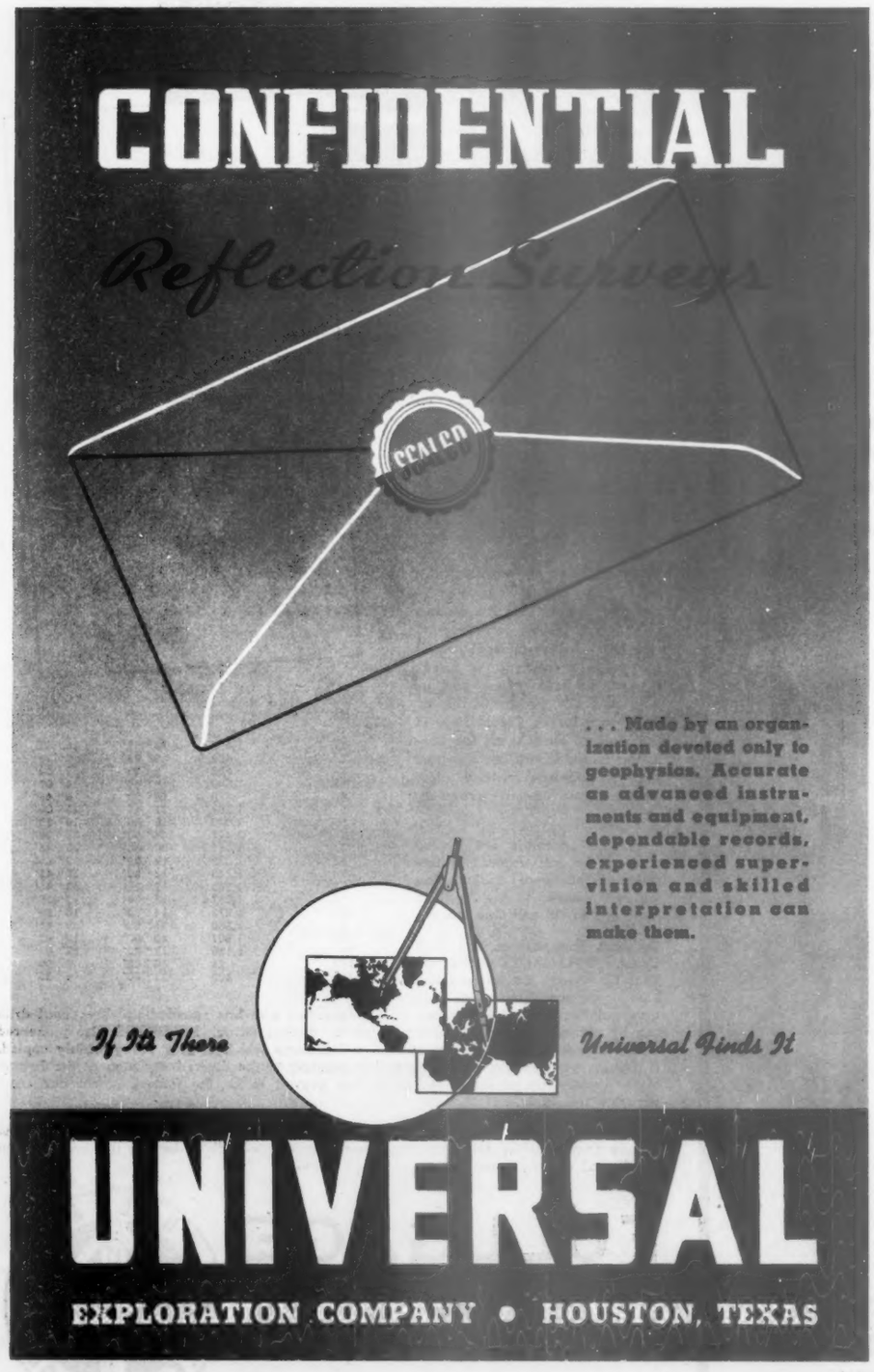
103-104-105-106-107-108 Oklahoma Building

In attendance

W. B. HOLTON, president
HOWARD COONLEY, chairman
J. M. OLMSTED, vice president of sales
F. H. MOREHEAD, vice president of engineering
F. W. DUEMLER, vice president of sales
C. L. BRADBURY, manager, Dallas office
E. L. CLARK, field sales
O. EVANS DUEMLER, sales engineer
C. G. FINKLE, manager, Houston office
R. J. GLASSCOCK, field sales
L. F. LAMBERTY, field sales
F. S. MARKLE, field sales
H. C. NANNEN, refinery sales
J. L. RICE, field sales
W. H. WEBER, sales engineer
J. G. YOUNGREN, field sales
E. B. MARRS, field sales
H. G. LAMBERT, assistant manager, tool division

Principal features of the display will be two completely assembled christmas trees; one with the company's cast-steel flanged-end lubricated-plug valves, and the other assembled with Type 85 cast-steel flanged-end gate valves.

The company believes its lubricated-plug valves—including the lubricated-plug valves especially designed for mud-line service—and items typical of the company's line of cast-steel gate and globe valves and fittings in Series 150 to 1500, inclusive, suitable for hot-oil service, should be of interest to men from the producing and refining divisions. The line of 350-lb. WSP bronze globe and check valves for feed-water service, and a complete line of 350-lb. WSP-750F Walworth cast-steel globe, angle, check, and gate valves for steam-line service will also be displayed. Walco pipe wrenches, genuine Stillson wrenches, and Parmelee pipe wrenches, for use in all branches of the petroleum industry will be exhibited.


CONFIDENTIAL
Reflection Surveys
SEALED
. . . Made by an organization devoted only to geophysics. Accurate as advanced instruments and equipment, dependable records, experienced supervision and skilled interpretation can make them.
If It's There
Universal Finds It
UNIVERSAL
EXPLORATION COMPANY • HOUSTON, TEXAS

Watson Automotive Equipment Company
Washington, D. C.

Booths 2-3 California Building

In attendance

J. A. WATSON, JR. B. B. CAIN
C. P. GALANOT

Exhibiting new traction device for dual-tired vehicles. Galanot-Watson TYR TRACS give the extra traction and flotation necessary to get through to destination under its own power. The combination gives track-layer performance when in bad going, together with the economical hauling on the road. Galanot-Watson TYR TRACS, the result of 10 years' development work, quickly convert the pneumatic-tired vehicle into a track-laying vehicle. Carried along with the truck instead of tire chains, and as readily installed and removed from the wheels as tire chains, TYR TRACS provide both ground surface coverage and traction to get through. TYR TRACS are adapted to run on two-wheel, four-wheel, and six-wheel-drive trucks.

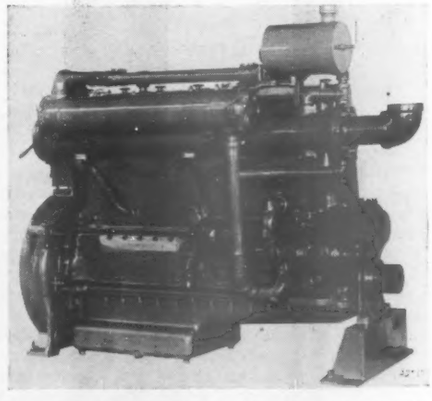
Waukesha Motor Company
Waukesha, Wis.

Block J

In attendance

J. E. DeLONG, president
J. B. FISHER, vice president and chief engineer
J. G. SWAIN, sales manager
E. R. RUTENBER, sales engineer
A. F. CAMPBELL, district manager, Mid-Continent office
G. A. DUNCAN, sales representative, Mid-Continent office
GEORGE KNIPFEL, representative, Mid-Continent office

Showing a moving demonstration of two outstanding developments of this company, unique in their application to the oil industry. Long known as the builder of the oil industry's octane-rating engine, the A.S.T.M.-C.F.R. fuel-research unit, this company has now produced a piece of laboratory equipment for full-scale single-cylinder testing of aviation engines. The design is the embodiment of the combined thought of a committee of the world's leading aeronautical engine designers and the result of more than 5 years concentrated study. A massive iron crankcase forms the base which is divided into separate compartments and each sealed from the other for isolated study of



Multifuel drilling engine with built-in exchanger using butane fuel

lubrication problems. The crankcase compartment is an integral unit. The timing-gear compartment is an integral unit, and in the base is a separate unit housing a Lanchester balancing system which is driven from the crankshaft and is designed to permit speeds up to 3,000 r.p.m. with practically no noticeable vibration. There are two sets of weights in the base, one operating at crankshaft speed to balance out the primary reciprocating forces and the other pair of weights running at twice engine speed to balance out the secondary unbalanced forces. The engine with its many variable adjustments will be demonstrated by a laboratory assistant.

The newest development of the company's commercial engines lies in the producers' field and is embodied in the new multifuel design which is arranged to burn diesel oil, natural gas, butane, propane, and a whole host of liquid and gaseous fuels with no internal change whatever and with only external accessories which are directly concerned with the fuel system. No heads, pistons, rods, or other major units are changed when converting this engine from an injection oil engine to carbureted fuels. Two engines of this type will be in operation.

They are identical basically. One will be arranged for natural gas with gas carburetor and gas-manifolding while the other for diesel fuel with Bosch injection pump and Hesselman spark-ignition combustion system. These are both six-cylinder engines developing 185 hp. without supercharging and will be cooled by heat exchangers instead of the usual radiator and fan arrangement.

The company is now making a complete line of multifuel engines from a small four-cylinder engine of 50 hp. to the largest six-cylinder developing 325 hp.

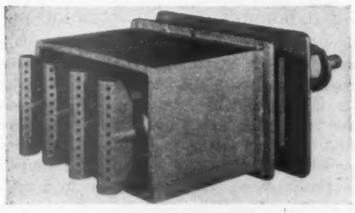
The Webster Engineering Company
Tulsa, Okla.

22 and 23 Oklahoma Building

In attendance

L. S. REAGAN — G. C. BERGTHOLDT
J. C. WALLIS — N. R. MANNON
H. A. MACFARLINE

Products displayed: RD series combination gas and oil burners; 900 series vertical and horizontal gas burners; F600 series low-pressure vertical burners; VI series high-pressure inspirator burners; Webster "Varivalve" control equipment.



The Series 900 premixing burners for both horizontal and vertical firing are parallel groupings of a unique rectangular burner head, as shown above. They vary in size, but their basic designs are identical.

Secondary air distribution to all burner ports is equal, due to the parallel arrangement of burner heads. This eliminates the "high center," unequal flame pattern so often produced by the circular and radial types. Easy renewal of burner heads when need arises. Single heads can be replaced at small cost, an exclusive feature of multiple head design. Various gases—Webster Series 900 burners can be adapted to any B.t.u. value gas fuel. Within reasonable limits, the B.t.u. can be varied on a burner and compensated for by changing the pressure on the inspirator.

Web Wilson Oil Tools
Huntington Park, Calif.

86 Kansas Building

In attendance

W. W. (WEB WILSON
BYRON M. LANDIS

Correct engineering principles together with special high-strength heat-treated steel combine to make the company's tong convenient, safe, and strong. With the three-jaw tong head, a change of but one jaw changes the tong from any one drill-pipe size to another. Each jaw positively grips all sizes from full hole to worn tool joints, eliminating the necessity of extra latches, bushings, sliding blocks, etc. The three-jaw principle reduces the number of wearing parts and increases the tong's life. The stirrup-type latch gives equalized stress and is so constructed as to be impossible to open while the tong is under load.

A new principle and scientific design were combined to make the company's new center-latch elevator strong and safe. Special alloy steel and its exacting heat treatment increase the safety factor so that actual tests have proven this elevator capable of capacities far in excess of the strength of the pipe with which it is used. The new principle of surrounding the pipe more than 180° with one-half of the body for external upset pipe eliminates excessive stresses in the hinge pin and latch which have often caused failures to these parts in the past. Another exclusive feature is the hinge spring which automatically opens the elevator when the latch is released, also holds it in the normal vertical position when running empty and open.

Well Machinery & Supply Co., Inc.
Fort Worth, Tex.

Block 7

In attendance

H. G. PARR, general manager
W. B. BROWN, vice president
W. J. BROWN, sales manager for oil-country products
FRED EUSTACE, engineer
CHARLES HOBART, engineer
R. L. McCANN

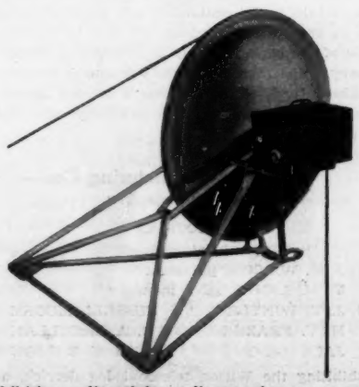
Exhibit will consist of a Jumbo "D" Fort Worth spudder with chain-driven sand reel, 52-ft. mast, combination drilling and shear pole head. This machine has an actual drilling capacity of 3,500 ft., weighs only 24,000 lb. and is described as ideal for drilling in the shallower areas or for drilling in behind rotaries, clean-out work and lease maintenance. It has ball and Timken roller bearings at all vital points. The clutches are of the external friction type; the shafts are alloy steel of high tensile strength; the tool-line spools in the center of the drum, thereby assuring even spooling of line; the brake bands are double asbestos-lined and are operated on an equalizer that keeps the same pressure applied with both bands at all times. The main sills constructed out of long-leaf southern pine are reinforced both top and bottom with steel which not only adds to their strength but sets up a steel base for the bearings that carry the various drums. Alemite lubricating system is employed, assuring positive lubrication to all bearings.

Well Surveys, Inc.
Tulsa, Okla.

85 Scientific and Technical Building

In attendance

R. E. FEARON — E. H. OLMSTEAD
T. G. GILMARTIN



Exhibiting radioactivity well-surveying apparatus for logging cased wells. The products displayed will be the detector of radioactivity itself (which is lowered into the well during a survey), new depth-measuring and recording apparatus, and a considerable number of radioactivity well logs obtained in representative areas. A number of maps showing long and short-distance correlations by radioactivity will also be displayed.

The company has introduced this year a new method of well logging which has the ability to log well through casing. Utilizing the radioactivity of formation rocks, the method was developed in the laboratories of Seismograph Service Corp. and Engineering Laboratories, Inc., of which Well Surveys, Inc., is an affiliate. Since the radioactivity of rocks is entirely unalterable, well logging by radioactivity is able to present a more accurate graph of the entire drill hole.

Westcott & Greis, Inc.
Tulsa, Okla.

45, 46, 57, and 58 Scientific and Technical Building

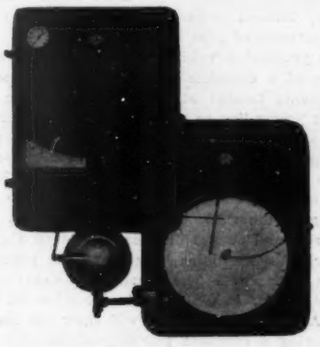
In attendance

J. H. SATTERWHITE — C. C. CLOVER
H. W. WAHL — B. E. KEELING
C. E. CRAWFORD — VAL LINK, JR.
R. A. MARSH

American Meter Co.
A. F. BENSON

Showing the following:

American Meter Co. products covering positive displacement meters, flow meters, flow controllers, separator differential valve-type controllers, air-actuated remote recorders and meter-testing equipment.



Crosby Steam Gage and Valve products covering their line of indicating and recording gages, safety and relief valves.

Davis Regulator Co. back-pressure and reducing regulators, level controllers, etc.

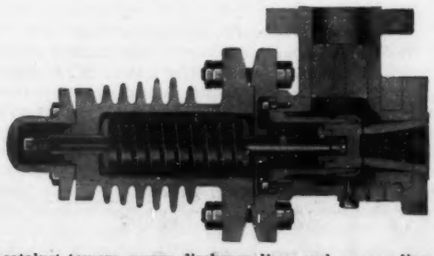
Robinson Orifice Fitting Co., orifice change fitting and leveling saddle.

Crosby Steam Gage & Valve Co.
New York

In attendance

GEORGE F. FELKER — F. H. BREOR
JOHN GIESEKE — D. S. KIER

The company's nozzle-relief-valve line has recently been extended, the new valve being designated as Etyle JJAC. These valves are designed for extremely high pressures and temperatures for evaporators, oil heaters, catalyst towers, pump discharge lines and process lines in oil refineries and chemical plants. They are suitable for service on gas, vapors and liquids. These valves are designed for pressures up to 2,700 lb. at 900° F. and 2,000 lb. at 1,000° F. Back pressures up to 700 lb. at 600° F. are allowable in certain sizes. The nozzle and the disk, the only parts normally under pressure, are forged from a high nickel-chrome-alloy steel. There are no threaded or expanded joints under pressure, and leaks from that source are therefore impossible. The



design of the nozzle, disk, and the body, it is said, is such that the frictional loss through the valve on vapor discharge is less than 3 per cent of the theoretical discharge of the orifice.

The disks have been made heavier and longer and the thickness of metal available for reseating has been increased to add to the life of these parts. The springs are raised out of the body of the valve and placed entirely in the bonnet with a cover plate underneath, preventing contact with the discharging fluid and affording better protection for the spring against temperature. Tungsten springs are used. The bonnets, fitted with radiating fins to permit rapid cooling, serve effectively as the spring chamber forming a dead end. The adjusting bolt is covered by a flanged bolted cap, assuring complete tightness on the discharge side.

Western Iron & Foundry Co.
Wichita, Kans.

69 Texas Building

In attendance

D. A. SWENSON — J. Q. WARREN
J. W. EDWARDS

Exhibiting (1) new-type pumping unit—shock-absorber type, (2) model of Western derrick, (3) new-type drilling mast with skid, (4) mast head, single and double sheave, (5) refinery castings.

Westinghouse Electric Manufacturing Co.
East Pittsburgh, Pa.

91-92-93-118-119-120 Oklahoma Building

Exhibit will comprise two main parts. The first of primary interest to producers and second to refiners and operators of pipe lines.

The production exhibit will be a large animated picture of a complete well-pumping equipment with instruments located at several points from the incoming power line to the pump at the bottom of the well to register instantaneous loads at any point in a complete pumping cycle. Measurements include input to the motor, torsional stress in the low-speed shaft of the pumping gear, stretch in the pitman, bending in the walking beam, and loads on the polished rod, and at two different points on the sucker-rod string between the surface and the pump at the bottom of the well. The actual instruments employed will be shown in their relative location on the display. A chart at each point will show the load variation during a complete pumping stroke.

The other part of the exhibit will typify engineering looking forward to the solution of future oil-industry problems.

Wheatley Bros. Pump & Valve Manufatcurers
Tulsa, Okla.

Block "M"

In attendance

FRANK WHEATLEY, SR., president
FRANK WHEATLEY, JR., vice president
TOM WHEATLEY, representative
DAN O'SHEA, vice president
GLEN TAYLOR, sales
M. HAMPTON, representative

Wheeling Corrugating Company
Wheeling, W. Va.

Booth 76 Kansas Building

In attendance

F. E. HAWLEY, JR. — J. E. BODDY
R. L. BRAMMER, manager of sales

The steel shipping container division exhibits single trip steel containers in sizes from 1 to 70 gal. in gages from 19 to 28, inclusive, plain painted any color, rubber pad printed or lithographed with proprietary labels.

Wheeling Machine Products Co.
Wheeling, W. Va.

125 Kansas Building

White Motor Co.
Kansas City, Mo.

Block G

Whitney Chain & Mfg. Co.
Hartford, Conn.

74-75 Kansas Building

In attendance

L. B. REED, vice president
R. J. HOWISON, sales manager
J. W. ANDERSON, Dallas representative
F. H. WEISS, Tulsa representative
R. L. MULLANEY, assistant general manager
V. A. HANSON, field manager
W. H. C. BERG, metallurgist
E. N. BIDWELL, advertising manager.

Products displayed: Whitney roller and silent chains and sprockets, conveyor chains, flexible couplings.

Wickwire Spencer Steel Company
New York

109-110 Oklahoma Building

In attendance

O. C. ELLIOTT — E. J. DALY
R. J. JONES — A. S. RAIRDEN
K. A. ZOLLNER

Paneled display with an illusion box, stressing increased service life with resulting lower costs through the use of the company's drilling lines and other ropes used in the oil industry.

Wico Electric Company
Springfield, Mass.

109-110 Texas Building

In attendance

O. A. POWELL, manager manufacturers sales
C. G. WATERS, Midwest district manager
WM. ABILDGAARD, Southwest district manager
LEON F. SMITH, sales engineer
VICTOR K. HUNT, manager trade sales

The company's exhibit this year will be built around the new vertical magneto, the Electromag. This is a distributor type of magneto and can be installed on the engine, to operate off the half-time shaft, and fills, the company believes, a long-time want on the heavy-industrial, heavy-truck and bus ignition. Not only does this unit incorporate many new and patented features which add to its general appearance, but it is simple enough in construction to be economical to build and permit extremely low list price.

A new electrical circuit gives an exceedingly high spark output at all speeds and particularly in the low brackets where it is so essential.

The company invites all of its friends to visit the booth and allow it to show them this new and startling development.

In addition to the sturdy oil-field models which are so well known in the oil industry, the company will show its late development of rotary-type magnetos, both large and small.

Willard Storage Battery Co.
Cleveland, Ohio

34 California Building

Wilson & Bennett Mfg. Co.
Chicago, Ill.

39 Kansas Building

In attendance

H. F. LePAN — H. A. ROGERS

Our booth will be a colorful exhibit of steel containers, especially designed for the safe shipment of oil and grease products. Approximately 60 samples of plain and decorated containers now supplied to leading refiners and grease compounders will be shown. The theme of the background is an interesting oil-field and refinery scene, across which will move colorful cut-out illustrations of the company's oil and grease containers, as well as miniature trucks, buses, tractors, and passenger cars.

Wilson Manufacturing Co.
Wichita Falls, Tex.

Block Q

In attendance

J. H. WILSON, president
V. M. LIGON, sales manager
J. V. WINTLE — RUSSELL MOORE
H. V. FRAZEE — B. A. McCULLAH
JACK LIGON — JACK WILSON

Exhibiting the Wilson telescopic-leg derrick, a new and improved design for this type of equipment, which, it is claimed, offers advantages not commonly found in so-called "open face" derricks.

The telescopic-leg derrick is 96 ft. in height, with racking platform, and four sheave-in-line crown blocks with cross-bracing to strengthen the entire unit. In field tests, the new derrick is said to have shown itself capable of greatly increased loads, due to its exclusive method of construction.

Other equipment to be shown: Titan model streamlined drilling rig with air controls, powered by two V-12 Le Roi gas-butane engines; Giant model streamlined drilling rig, with air controls, powered by two convertible Caterpillar V-8 gas-diesel engines. Mogul model streamlined drilling rig, with manual controls, powered by two new Model M-858 Buda gas-gasoline engines; Utility unit, complete with H-173 Buda engine, 5 kw. generator, 1-in. centrifugal wash-down pump and air compressor; Supermodel motor winch, complete with seat controls, with internal-expanding drum-friction clutch and K-428 combination gas-gasoline engine; Master model motor winch complete with internal-expanding drum-friction clutch, with Ford V-8 engine and with single 45-ft. telescoping mast pole, mounted on International Harvester DS-30 truck; Mogul model double-drum rocking-arm spudder winch, with splash-circulating brake rings in both drums, with internal-expanding drum-friction clutches, and with GAKU Waukesha combination gas-gasoline engine; Supermodel double-drum rocking-arm spudder with air-cooled brake rings in both drums. Internal-expanding drum-friction clutches and PA-100 International Harvester combination gas-gasoline engine.

All rigs shown will be equipped with friction rotary and pump drives, with friction clutches on both the final drum drives. Spudders are equipped with eight-speed jackshafts and with oil-bath guards from motor to countershaft. California guards are also a part of the equipment on these spudders.

Wilson Supply Co.
Houston, Tex.

Block L

In attendance

W. D. WILSON — P. S. STOVER
T. L. MOORE — R. S. BENNETT
W. J. RILEY — JEDDY D. NIXON
A. C. EVANS — M. W. WILLIAMS
B. ANDERSON — W. J. SUTTON
J. M. HUMPHRIES — F. M. STAUFFER
J. O. DORROH — E. E. PICKERING, JR.

Exhibiting several new items manufactured for the company by Jeddy Nixon Co. Type "C" Two-in-One Intermitter for use with the surface control gas-lift system is a combination fluid-release and time-release unit for closing the flow valve. The selective flow-differential regulator is the pilot-controlled type with a snap-action valve either fully opened or fully closed. Actual pressure reduction takes place in a calibrated choke located downstream from the regulator. Cutting action due to abrasive material in the gas is transferred from the regulator valve to replaceable positive choke.

The intermittent chemical injector has a pump, actuated by low-pressure gas with the rate of injection controlled by a clock-timed pilot valve.

"Friendly" tubing slips feature slimmer slips of perfect balance; interchangeable adapters which make one bowl applicable for all sizes of pipe from 3 in. down to 1¼ in. Another advancement is replaceable latch and hinge on the high-tensile "Promal" cast-steel bowl.

The Coffey robot stack draft produces a mechanically-induced draft through an oil-field boiler. It consists of a turbine-driven, fan-type blower in a vent extending through the specially designed 36-in. stack.

In addition, a 28-ft. glass working model of the gas-lift system made for producing from off-bottom will be exhibited.

Wilson Welder & Metals Co.
34-35 Oklahoma Building
New York

W-K-M Company, Inc.
Houston, Tex.

207-208-209-210-241-242-243-244 Oklahoma Building

In attendance

L. O. KOEN, vice president, W-K-M Co., Inc. (in charge)
O. D. SMALL, W-K-M Co., Inc.

F. M. BLACK, W-K-M Co., Inc.
G. M. STEWART, W-K-M Co., Inc.
GEORGE FRANKS, W-K-M Co., Inc.
W. H. EASON, W-K-M Co., Inc.
E. N. CORNING, Everlasting Valve Co.
C. J. BROWN, Merco Centrifugal Co.
C. A. LINDSAY, Merco Centrifugal Co.
A. S. CRUTCHER, Crutcher-Rolfs-Cummings
J. D. CUMMINGS, Crutcher-Rolfs-Cummings
E. L. ROLFS, Crutcher-Rolfs-Cummings
W. L. CHURCH, Acme Gas Lift Co.
T. N. HUNT, Hunt Tool Co.
U. V. SEALES, Hunt Tool Co.
H. B. COOKSTON, Rig-A-Lite Sales Co.
C. R. EDWARDS, Houston Engineers
R. M. CLAYPOOL, Houston Engineers
J. A. DORMANT, Houston Engineers

Products displayed:

W-K-M through conduit lubricated gate valves. (Cutaway models, working models and assembled into complete high-pressure christmas tree.)
W-K-M tubing slips and spiders.
W-K-M rotary slips.
W-K-M Master steam scrubbers.
W-K-M Master gas scrubbers.
W-K-M Hauser round kelly drive.
W-K-M gun perforator.
W-K-M pipe-cleaning and priming machine.
J-M pipe-coating and wrapping machine.
Acme gas lift.
H-E reversing tool, spear, overshot, and fishing tools.
Rig-A-Lite derrick lighting strings.
L-K cementing plugs and spinning-line swivels.
Hunt wire-line core bits.
Hunt welded-in blade bits.
Hunt valves.
Hunt blue-flame and Reagan gas burners.
Coexhibitors and products:
Everlasting Valve Co., Jersey City, N. J.
Blow-off valves, throttle shut-off valves, water column valves, tandem valves.
Merco Centrifugal Co., San Francisco, Calif.
Merco Centrifugal desander and concentrator.
Crutcher-Rolfs-Cummings, Houston, Tex.
Pipe-line equipment.

Wisconsin Motor Corporation

Milwaukee, Wis.

(Harley Sales Company—Oil Field Distributor)

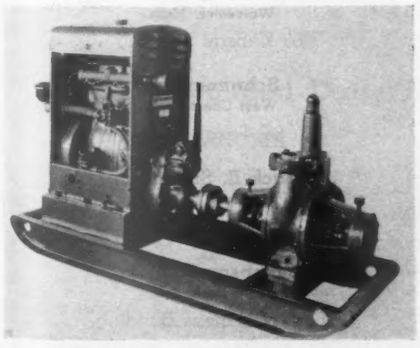
Tulsa—Houston

Block 3

In attendance

HAROLD TODD — HARRY CRONK
PHIL NORTON, JR. — DON THOM
HARLEY B. NEAL — GERALD SCHMITT
ROY O. NEAL — GEORGE E. KLUPPEL

The corporation has been manufacturing multicylinder internal-combustion engines for more than 30 years and its engines, it is said, have been progressively de-



signed and improved by the application of the best engineering skill and experience coupled with constant and continual experimentation both in the factory and in field operations.

One important credit is due to intelligent application of new discoveries in metallurgy, where the company's engineers chose to get the most suitable alloys for different parts of the engines, scrutinizing such alloy characteristics as high tensile strength, resistance to oxidation, low weight, and freedom from crystallization.

Equipment on display: AC-4S cutaway; AH with clutch; AE with clutch; AK with reduction; AB standard; AP-4S power unit.

Worthington Pump and Machinery Corp.

Harrison, N. J.

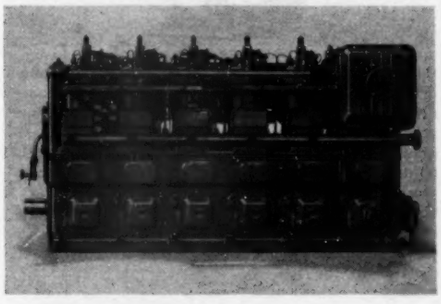
Block L

In attendance

E. T. FISHWICK — W. L. RUSSELL
W. D. SMITH — D. K. CHADBOURNE
F. J. WHELAN — J. V. JIRASEK
F. B. APPLEGATE — J. O. LEWIS
P. A. MACK

A hydraulic transmission and reverse gear for heavy-duty rotary draw works has been developed by the corporation and its formal introduction to the industry is scheduled for the exposition. The transmission is designed to operate much in the same manner as some of the so-called fluid drives for automobiles known as torque converters. Forward and reverse motion, as well as idling, is accomplished without gears or clutches of any kind and depends only upon the hydraulic reaction developed within the transmission by centrifugal force. Power for operating the draw works and rotary table is under instant control of the driller and does not depend primarily on engine speed.

The action of the transmission is analogous in every respect to that of an electric generator and motor set, and, in common with it, transmits power without mechanical connection between the engine and the draw works. In effect it substitutes hydraulic energy for electric energy but is not limited by many of the factors affecting the application of electric energy. For example, it can remain in a so-called stalled position, balancing the pull on the line without the aid of the brakes for indefinite periods. Its torque conversion exceeds that of the motor, with Ward-Leonard control, so that the available engine power is more effective for accelerating the load on the draw works.



Five-cylinder compressor, a scavenger system replaces the sixth cylinder

Yale & Towne Manufacturing Co. (Philadelphia Division)

Philadelphia, Pa.

17-18 California Building

General display material will consist of panels with colored mounted photographs with indirect lighting from the back. These will extend along the back wall of exhibit space. They will contain pictures of electric industrial trucks, hand-lift trucks and skid platforms, hoisting equipment including the Cable King wire-rope electric hoist and the company's regular line of hoisting equipment and Pul-Lifts. In addition to these lighted panels it will have equipment in operation, including its complete line of hoists and a hand-lift truck suitable for general use in the oil industry.

The only product which is new is the Cable King electric hoist. This has been on the market but a short time.

Yellow Transit Co.

Oklahoma City, Okla.

Block N

In attendance

C. C. CORNISH, general freight agent
H. J. McKITTERICK, Tulsa terminal manager
R. V. MILLER, commercial representative

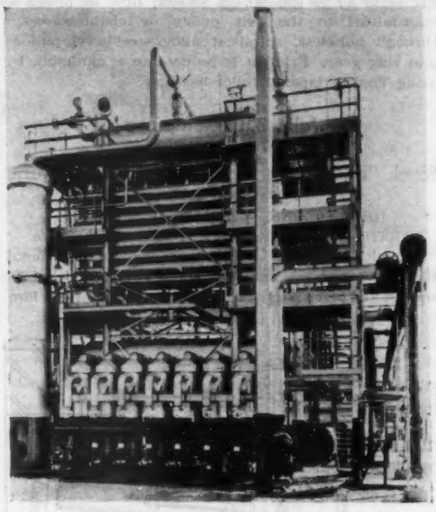
Exhibiting the latest model of tractor and trailer freight unit operated by this company. We own and operate over 300 pieces of modern equipment, own and operate all of our principal terminals and directly serve with our daily scheduled operations all of the oil fields in the entire central and southwestern part of the United States, including the Illinois oil field, the Kansas oil field, Oklahoma and Texas oil fields.

York Ice Machinery Corporation

York, Pa.

81-82 Kansas Building

Exhibiting a Yorkaire 350 self-contained air conditioner for small and medium-sized offices or series of offices; Flakice "Cold Magic" machine which manufac-



A 700-ton absorption refrigeration system installed out of doors

tures ice in ribbon form; and, since it is practically impossible to exhibit an actual absorption refrigeration system, this new feature will be shown by means of a photographic display.

Yorkaire 225 is the result of months of effort on the part of the company's development engineers to produce a compact, low-cost, self-contained air conditioner which will do everything that the larger units will do. The line has been expanded and improved to include units from 2 to 15 hp., covering almost every commercial application of air conditioning where compact, readily-movable equipment is necessary.

Young Engine Corporation

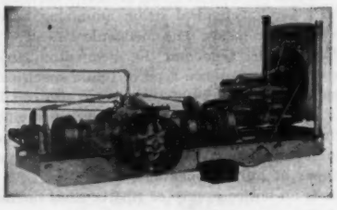
Canton, Ohio

Block A

In attendance

W. T. YOUNG — A. E. AVERS
PAUL A. FOSTER

Three units of equipment will be exhibited, the



Young drilling engine

company's universal jack-shaft assembly, drilling engine and electric generating unit. An important feature in each unit is the careful attention given to making it easily handled when moving from one location to the next.

Flexibility in the use of power is another feature of the jack-shaft assembly. A smooth operating Airflex cutoff coupling engages to permit the use of the combined power of both drilling engine and slush-pump power unit for the draw works when handling pipe. Both engines may be compounded for extra power for the slush pumps. Finger-tip control from the derrick floor gives the driller instant reverse of motion and control of speed.

The company's electric-light plants and generating sets are built especially for oil-field service. Either an alternating or direct-current generator is supplied, ranging in size from 1 kw. to 75 kw. direct-connected through a flexible coupling to a four or six-cylinder engine—gas, gasoline, butane or diesel.

The company's gas, gasoline and diesel drilling engines are reported saving time and money on tough

drilling jobs. Heavy-duty motors deliver power efficiently through patented right-angle drive-reversible transmission. Each engine is a complete and compact unit mounted on welded-steel skid frame, assuring permanent alignment and easy moving. It can be set up or made ready to move in less than an hour. Units are powered with six-cylinder heavy-duty motors ranging from 85 to 350 hp. A smooth flow of power is transmitted to the belt pulley or chain sprocket through noiseless, spiral-cut alloy steel-bevel pinions and ring gear. Friction is reduced to a minimum by using Timken tapered roller bearings.

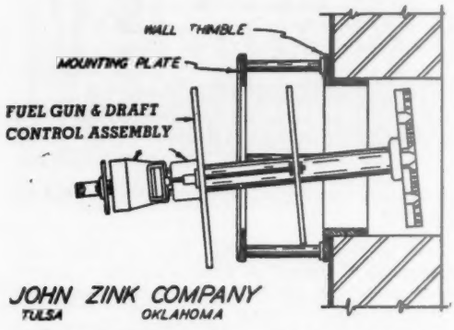
John Zink Company
Tulsa, Okla.

Block "M," Oklahoma Drive, outdoor exhibit

In attendance

JOHN S. ZINK WALTER J. COMBS
ARTHUR J. MOORE, New York representative

Exhibiting vertical Bi-Mix gas burners, horizontal Bi-Mix gas burners, multiway frame combination burners, Bi-Air refractory gas burners, venturi type low-



Multi-Way Frame Combination Burner. — This new burner is built to receive the working parts of the various types of John Zink burners. This added feature is available on John Zink Series Y, Series HBM, Series BMD, and Series BMY burners. Sizes range from 14-in. to 30-in., with capacities from 2,000,000 to 40,000,000 B.t.u. per hour. The outstanding features are the easily removable fuel guns and the featherweight air control door

pressure gas burners, semimechanical steam atomizing oil burners, two-way oil burners (either mechanical or steam atomizing type), register ring type combination oil and gas burners, low-pressure Zink Star burners, domestic conversion burners, gas-fired floor furnaces, unit heaters, straightening vanes.

The two-way oil burner can be furnished with two heads and can be used as a mechanical atomizing burner or as a semimechanical steam atomizing burner by simply changing heads. The mechanical head is a tangential slot whirl type and the steam-atomizing head may be drilled to produce type of flame specified. Wall thimbles or air registers of the proper size can be furnished as extra equipment. The oil gun will pass through standard 2-in. pipe and such pipe can be used as a guide or support to hold it in wall thimbles or other types of burner openings.

There is an entire family of Bi-Mix floor burners for vertical firing consisting of a number of burner units built into a frame.

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Too Late to Classify

American Cast Iron Pipe Co.
Kansas City, Mo.
Block M

American Electric Ignition Co.
Oklahoma City, Okla.
48 California Building

American Steel Derrick Co.
Tulsa, Okla.
1-2 Kansas Building

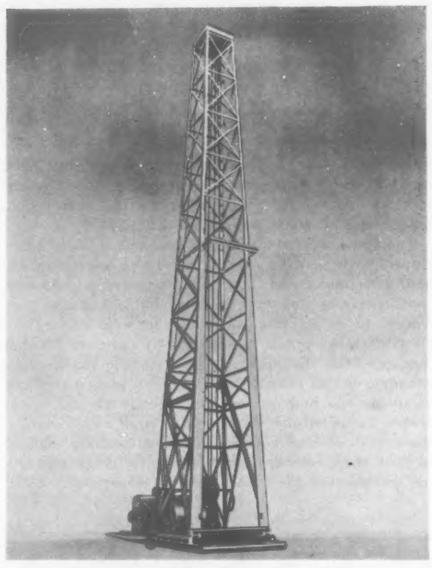
Glenn E. Breeding
Oklahoma City, Okla.
Block 103

Brauer Machine & Supply Co.
Oklahoma City, Okla.
Block T

In attendance

LEO F. BRAUER W. N. STONE
WALTER BRAUER R. R. BLAKLEY
PAT BRAUER LLOYD G. ENSIGN
PHILLIP MILNE J. P. ALEXANDER
STANLEY PONIEWOZ W. M. SMITH

Will exhibit 27 products, including the new Brauer complete portable rig, junk basket, light weight rotary slips, release valves, shallow-well swivel and drill-pipe



floats. The Brauer portable rig is designed for rotary drilling up to 2,500 ft. and incorporates a balanced group of machinery suitable for this purpose. Standard equipment includes an oil-bath rotary table and draw works on skid, portable derrick which is raised by draw works, and roller-bearing crown block, travelling block, hook and swivel. The complete rig is built within road limits to permit easy transportation of derrick and other parts. The swivel used on this rig is handled without bails merely by latching the elevator to the top.

Brewster Co., Inc.
Shreveport, La.
Block R

Butler Manufacturing Co.
Okmulgee, Okla.
4 Texas Drive

Dura metallic Corp.
Kalamazoo, Mich.
123 Kansas Building

Electric Arc Cutting & Welding Co.
Newark, N. J.
132 Kansas Building

Gentry Engineering Co.
Saegertown, Pa.
126 Kansas Building

Guardian Electric Mfg. Co.
Chicago, Ill.
84 Kansas Building

Haynes Stellite Co.
New York
19 Texas Building

Heidie's Machine Works
Oklahoma City, Okla.
43 California Building

Jensen Bros. Manufacturing Co.
Coffeyville, Kans.
21 Kansas Building

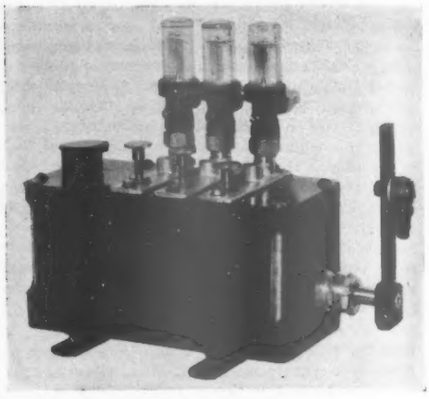
Keystone Driller Co.
Beaver Falls, Pa.
Block V

McCord Radiator & Mfg. Co.
Detroit, Mich.
72-73 Oklahoma Building

In attendance

W. G. HANCOCK, general sales manager
W. J. POWERS, sales manager
J. S. LYALL, field representative
RALPH URSO, sales department

Showing a complete line of the company's lubricators and chemical pumps. Various types of lubricators for different applications back up the statement,



"SF" lubricator with "Clearsite" plastic sight feed

"There is a McCord lubricator for every lubrication need." On display will be a lubricator that will pump against pressure in excess of 10,000 lb.

McLaron Distributing Co.
Tulsa, Okla.
187-188 Oklahoma Building

McNamar Boiler & Tank Manufacturing Co.
Tulsa, Okla.
6 Texas Drive

National Carbon Co., Inc.
New York
17-18 Texas Building

Ozarka Enterprises
Bartlesville, Okla.
99 Kansas Building

Rockwood Sprinkler Co.
Worcester, Mass.
85 Kansas Building

Schramm, Inc.
West Chester, Pa.
8-9 Texas Drive

Jack R. Snedden
Tulsa, Okla.
1 Texas Drive

Thompson Tool Co.
Iowa Park, Tex.
East of Kansas Building

Universal Microscope Co.
Chicago, Ill.
53 Oklahoma Building

Warner Lewis Co.
Tulsa, Okla.
4-5-6-7-8-9 Kansas Building

Wylie-Stewart Manufacturing Co.
Oklahoma City, Okla.
Block 103

Mid-Continent Refinery Crude Runs Near Last Year's Peak

DAILY crude runs to stills in the Mid-Continent area advanced 22,655 bbl. in May, with a total of 555,500 bbl., compared with 532,845 bbl. processed in April. This April figure has been revised downward slightly from the figure given last month in this table. All districts report substantial increases in their operations with the exception of North Central Texas. Crude runs for May are 20,965 bbl. higher than they were for the same period last year and are near the top figure set in 1939 at the peak of the motoring season.

Kansas

Increased crude runs in Kansas amounted to 9,950 bbl. compared with last month. The new cooperative refinery at Phillipsburg, operated by the Consumers Cooperative Association, was officially opened last week and is processing approximately 3,000 bbl. of crude oil daily. Socony-Vacuum Oil Co. has increased its crude runs from 20,000 bbl. last month to 23,000 bbl. in May. Other refineries increasing crude runs were: Derby Oil Co. at Wichita, up 1,000 bbl.; Kanotex Refining Co., Arkansas City, from 5,500 bbl. to 7,000 bbl.; Phillips Petroleum Co., Kansas City, from 16,650 bbl. in April to 17,400 bbl. in May; and the Eldorado Refining Co., Eldorado, from 4,000 bbl. last month to 5,000 bbl. in May. Last month's report in this table listed the Globe Oil & Refining Co., McPherson, as running 16,000 bbl. daily. This has been corrected to 15,000 bbl., which is capacity of the plant. Total crude runs estimated to be processed daily for Kansas are 144,000 bbl.

North Louisiana and Arkansas

North Louisiana daily crude runs are up 2,850 bbl. compared with April, with a total of 39,225 bbl. scheduled to be run daily in May. Arkansas Fuel Oil Co. at Bossier City has increased its daily runs to stills from 16,000 bbl. to 18,000 bbl. in May. The Premier Oil Refining Co. of Texas, at Cotton Valley, and the Rodessa Oil & Refining Corp., Cedar Grove, also show increased operations for May. The Evansville Oil Corp. has completed transferring its 1,000-bbl. skimming plant from the Sibley to the Cotton Valley field, North Louisiana, and has been making test runs, it is reported. During the remainder of the month it is expected that about 10,000 bbl. of crude will be processed, making a daily average of approximately 300 bbl.

In Arkansas the Lion Oil Refining Co., at El Dorado, has increased daily crude runs from 15,000 bbl. in April to 17,000 bbl. in May. The Root Refining Co., El Dorado, reports 8,050 bbl. in May, compared with 7,500 bbl. in April. Total daily crude runs for the state are 31,450 bbl.

Oklahoma

Estimated daily crude runs in Oklahoma are 158,500 bbl., compared with 157,000 bbl. in April. The April figure is a revision over that reported in this table last month. There were no great increases at any one plant, the total gain of 1,500 bbl. being due to a gradual upturn in operations over the entire area.

West Texas and Panhandle

Estimated daily crude runs in the West Texas and Panhandle have made the greatest advance in several months with a total of 86,050 bbl. scheduled to be processed in May. This figure represents an increase of 3,630 bbl. over the preceding month.

East Texas

A general upturn in activities has resulted in an increase of 1,500 bbl. daily in crude run to stills in the East Texas area. The East Texas Refining Corp. at Longview reports 5,000 bbl. to be processed during May, compared with 3,500 bbl. in April. This company has also increased its crude capacity from 6,000 bbl. to 10,000 bbl. The Independent Refining Co., Arp, has increased its capacity from 3,500 bbl. to 5,000 bbl., and daily crude runs are up 1,000 bbl., compared with last month. The No. 2 plant of the Lynch Refining Co., Kilgore, has increased crude runs from 1,600 bbl. to 3,100 bbl. in May. Total crude runs for the month are 41,900 bbl.

Mid-Continent Crude Runs

Average Daily (Barrels)

(Advance estimate compiled by The Oil and Gas Journal)

	1938	1939	1940
January	529,710	503,405	532,085
February	507,985	494,910	526,785
March	491,935	497,180	531,645
April	532,120	523,535	532,845
May	527,315	534,535	555,500
June	540,005	541,090	.....
July	557,520	550,755	.....
August	554,810	556,095	.....
September	555,695	550,830	.....
October	531,325	547,725	.....
November	524,035	537,375	.....
December	503,530	527,230	.....

Operations by Refinery District

	Daily crude runs		
	May	April	Incr.
Arkansas	31,450	28,900	2,550
East Texas	41,900	40,400	1,500
Kansas	144,000	134,050	9,950
N. Central Texas	36,625	36,950	*325
North Louisiana	39,225	36,375	2,850
Oklahoma	158,500	157,000	1,500
Southwest Texas	17,750	16,750	1,000
W. Texas Panhandle	86,050	82,420	3,630
Total	555,500	532,845	22,655

*Decrease.

Estimated Daily Average Mid-Continent Refinery Crude Runs for April

OKLAHOMA

Company and location—	Daily capacity	Av. dly. runs May	Av. dly. runs April
Anderson-Prichard Ref. Corp., Cyril	8,000	6,500	6,500
Barnsdall Ref. Corp., Barnsdall	5,000	4,000	4,000
Bell Oil & Gas Co., Granfield	4,500	3,000	3,000
Ben Franklin Ref. Co., Ardmore	6,000	3,750	3,750
Black Gold Ref. Co., Oklahoma City	2,500	2,000	2,000
Champlin Ref. Co., Enid	16,000	15,000	15,000
Cities Service Oil Co., Okmulgee	4,000	(*)	(*)
Cities Service Oil Co., Ponca City	12,000	10,000	10,000
Continental Oil Co., Ponca City	28,000	24,000	23,750
Cushing Ref. & Gasoline Co., Cushing	4,200	3,500	3,500
Deep Rock Oil Corp., Cushing	10,000	9,000	9,000
Johnson Oil Ref. Co., Cleveland	6,000	4,000	3,500
Mid-Continent Pet. Corp., West Tulsa	35,000	21,000	21,000
Omar Ref. Co., Garber	5,000	(*)	(*)
Phillips Pet. Co., Okmulgee	6,000	5,950	5,800
Peppers Gasoline Co., Oklahoma City	500	400	400
Rock Island Ref. Co., Beckett	7,500	6,300	6,200
Sinclair Ref. Co., Sand Springs	6,000	5,600	5,600
Sun Oil Co., Yale	5,000	1,500	1,500
Sunray Oil Co., Allen	7,000	4,000	4,000
Texas Co., West Tulsa	16,000	15,000	15,000
Tide Water Oil Co., Drumright	12,000	10,000	10,000
Wilcox Ref. Division, Bristow	5,000	4,000	3,500
Total	211,200	158,500	157,000

*Shut down.

KANSAS

Company and location—	Daily capacity	Av. dly. runs May	Av. dly. runs April
Anco Ref. Co., Garnett	500	350	350
Barnsdall Ref. Co., Wichita	5,000	5,000	5,000
Bay Pet. Co., McPherson	4,000	3,000	3,200
Chanute Ref. Co., Chanute	1,000	700	600
Consumers Cooperative Assn., Phillipsburg	3,000	3,000	.....
Derby Oil Co., Wichita	8,000	6,500	5,500
El Dorado Ref. Co., Eldorado	7,000	5,000	4,000
Falcon Ref. Co., Inc., Great Bend	2,500	1,800	1,800
Globe Oil & Ref. Co., McPherson	15,000	15,000	15,000
Kanotex Ref. Co., Arkansas City	12,000	7,000	5,500
National Ref. Co., Coffeyville	8,000	4,200	4,200
Pet. Products Co., Chanute	1,250	1,000	1,000
Phillips Pet. Co., Kansas City	23,000	17,400	16,650
Roper Pet. Co., Parsons	750	(*)	(*)
Shallow Water Ref. Co., Scott City	2,000	1,050	1,500
Sinclair Ref. Co., Coffeyville	12,000	9,500	9,500
Sinclair Ref. Co., Argentine	11,000	9,500	9,250
Skelly Oil Co., Eldorado	23,000	20,500	20,500
Socony-Vacuum Oil Co., Inc., Augusta	25,000	23,000	20,000
Standard Oil Co. (Indiana), Neodesha	7,500	7,000	7,000
Vickers Pet. Co., Potwin	4,000	3,500	3,500
Total	175,500	144,000	134,050

*Shut down.

ARKANSAS

Company and location—	Daily capacity	Av. dly. runs May	Av. dly. runs April
Berry Asphalt Co., Waterloo	2,000	1,200	1,200
Henry H. Cross, Smackover	6,000	3,000	3,000
Lion Oil Ref. Co., El Dorado	17,000	17,000	15,000
Macmillan Pet. Corp., Norphlet	2,500	2,000	2,000
Root Ref. Co., El Dorado	10,000	8,050	7,500
Stephens Ref. Co., Stephens	700	200	200
Total	38,200	31,450	28,900

NORTH LOUISIANA

Company and location—	Daily capacity	Av. dly. runs May	Av. dly. runs April
Arkansas Fuel Oil Co., Bossier City	23,000	18,000	16,000
Atlas Pipe Line Co., Shreveport	12,500	6,000	6,000
Bayou State Oil Corp., Hosston	800	800	800
Evansville Oil Corp., Cotton Valley	1,000	325	.....
Pennant Ref. Co., Princeton	750	500	500
Premier Oil Ref. Co. of Texas, Cotton Valley	3,500	2,900	2,750

(Continued on Page 298)

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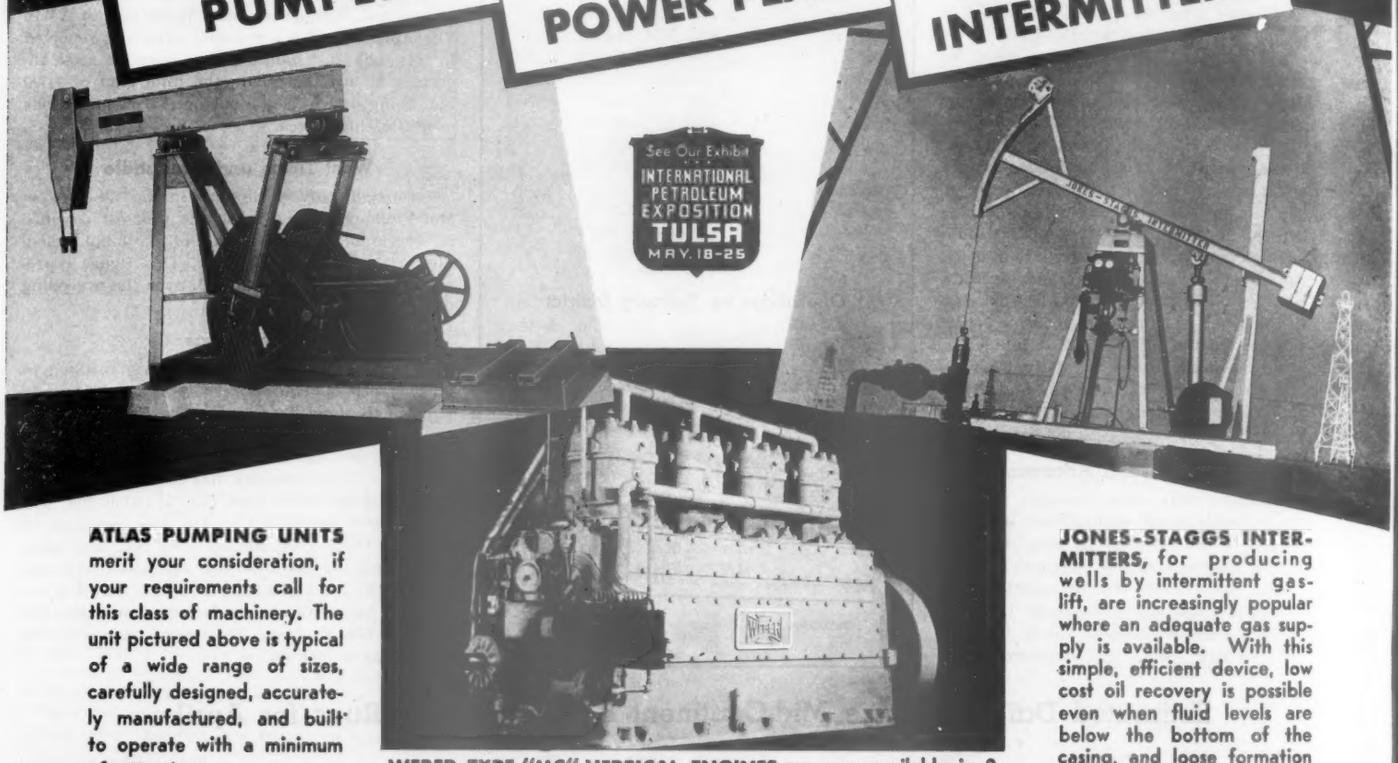

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FIELD OPERATIONS

Summarizing the Week's Developments

NEBRASKA—The second well to find oil in the Falls City district, Richardson County, extreme southeastern Nebraska, was estimated good for 400 to 500 bbl. of oil daily on the pump after swabbing at the rate of 700 bbl. of oil daily from Hunton lime.

SOUTHWEST TEXAS—Three pools were opened during the week: North Robstown in Nueces County; Orange Grove in Jim Wells County, and Bloomington in Victoria County. Flour Bluff in Nueces County was extended 1½ miles. Wade City in Jim Wells was extended about 2,000 ft. northerly.

GULF COAST TEXAS—Glenn McCarthy may have the distinction of owning the deepest producing well in Texas in his No. 1 Andrau in the Chocolate Bayou field, while in the Anchor field his No. 1 Yocum was producing distillate from pay at 10,124-31 ft. The West Ranch field in Jackson County was extended 2,000 ft. westerly. The Bancroft field in Beauregard Parish, coastal Louisiana, was extended northwesterly.

WEST TEXAS—A new oil field in Stonewall County from the Mississippian lime, the first such field in Texas; the opening of a new oil-producing area in Ward County, and indications of a new oil spot in Ector County, were features of a most profitable week.

EASTERN TEXAS—With the plug still undrilled in H. S. Moss' No. 1 Venters, indicated deep Trinity discovery well in Camp County, three locations have been staked for deep wells in the immediate area.

NORTH TEXAS—After failing to make producers from the regular pay horizon in the Bonita field of Montague County, Sinclair Prairie Oil Co.'s two deep exploratory tests offsetting its discovery well have both drilled into the Ellenburger lime of Ordovician age.

KANSAS—Chat pools were opened in the old Wenger area, eastern McPherson County, and west of the Lost Springs pool, Marion County. An Arbuckle lime discovery in Barton County was completed for 3,000 bbl. daily. A northern Cowley County wildcat cored saturation in Mississippi lime, and a Jefferson County wildcat was showing oil in the same formation.

OKLAHOMA—Two Hunton lime oil pools were opened southwest of the West Earlsboro field in Pottawatomie County. A pool opener in Okfuskee County was completed. A small shallow producer in the Frederick district of Tillman County was deepened to Arbuckle lime and flowed 1,662 bbl. of oil in 12 hours.

CALIFORNIA—The Cantua district in Fresno County may see the next pool discovery, a formation test at 9,330-60 ft. in a wildcat having developed wet gas.

ILLINOIS—The abandonment of Pure Oil Co.'s deep test in the Clone field in Wayne County and a 16,000-bbl. increase in daily average production were the only features in an otherwise routine week.

WYOMING—The largest well of the year in this state was completed in Lance Creek. It flowed 160 bbl. per hour through tubing.

COLORADO—A 500-bbl. well in Moffat County produces from three sands.

Completions in All Fields

(Week Ended May 11, 1940)

	Oil	Gas	Dry	Total	1940 total comp. to date	1939 total comp. to date
N. Y., Pa., and W. Va.	59	13	1	73	1,399	1,107
Ohio	8	4	6	18	366	324
Indiana	2	0	1	3	119	41
Kentucky	10	2	4	16	166	215
Illinois	67	1	9	77	1,242	1,179
Michigan	11	2	11	24	470	427
Kansas	30	2	11	43	548	402
Oklahoma	17	2	11	30	641	641
Texas:						
North Central Texas	39	0	29	68	1,167	810
West Texas	36	0	5	41	824	671
Texas Panhandle	12	0	1	13	211	142
East Texas	5	0	1	6	107	202
East Central Texas	0	1	2	3	89	93
East Texas Border	1	0	2	3	22	24
Gulf Coast Texas	19	0	2	21	478	491
Southwest Texas	22	0	15	37	848	877
Total Texas	134	1	57	192	3,746	3,310
North Louisiana	10	1	0	11	212	182
Gulf Coast Louisiana	15	0	2	17	330	203
Total Louisiana	25	1	2	28	542	385
Arkansas	3	0	2	5	82	85
Montana	4	1	1	6	54	48
Wyoming	3	0	0	3	55	33
Colorado	0	0	1	1	7	3
New Mexico	11	0	0	11	263	217
California	24	0	15	39	406	345
Total United States	408	29	132	569	10,106	8,762
Total previous week	416	50	96	562		
Week ended May 13, 1939	317	46	106	469		

Outstanding Fields—Highlights

(Week Ended May 11, 1940)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	42	45	11	6,610	1,339	39,500
Wasson-Bennett	13	53	8	9,650	798	36,135
Ector County	19	70	11	7,209	2,104	56,196
Pecos County	10	14	4	359	1,264	32,098
Jones County	8	18	2	170	613	8,350
East Texas	12	9	5	216	25,985	396,448
OKLAHOMA						
St. Louis	3	18	1	400	880	28,750
Cement	1	19	0	0	305	6,300
KANSAS						
Bemis	1	6	1	350	314	6,050
Burnett	2	12	2	700	87	4,465
Silica	1	14	1	53	621	8,750
Trapp	3	12	5	1,695	522	9,850
NEW MEXICO						
Lea County	17	41	6	1,649	2,459	96,920
Eddy County	16	60	5	636	561	17,730
LA-ARK-TEX						
Cotton Valley, La. (deep)	0	3	0	0	159	14,790
Olla, La.	2	10	0	0	3	19,950
Golden Meadow, La.	5	13	4	358	84	16,250
MICHIGAN						
Freeman-Redding	1	5	1	25	143	13,141
Kent County	5	19	0	0	304	16,347
CALIFORNIA						
Montebello	1	13	3	600	363	22,250
ILLINOIS						
Salem	20	81	31	32,593	1,927	257,422
Louden	4	28	11	1,579	1,434	73,648
Other basin fields	40	300	15	6,643	2,682	98,767
Old fields	....	....	....	....	....	8,202
MISSISSIPPI						
Tinsley	2	9	5	1,285	48	6,760

Illinois, Indiana and Kentucky

By STAFF CORRESPONDENT

Illinois Production Increases; Pure's Deep Test Abandoned

CENTRALIA, Ill., May 13.—Production took an upward turn in the past week, the total for the state having averaged 438,039 bbl. per day, an increase over the previous week of 16,011 bbl. per day. Salem produced 257,422 bbl.; Centralia, 26,210 bbl.; Louden, 73,648 bbl. and other basin fields, 72,557 bbl.; old fields, 8,202 bbl.

Pure Oil Co. abandoned its deep test in the Cisne field in Wayne County at 7,206 ft. Company officials will not admit that the St. Peter sand had been reached, although the impression has gone abroad that the hole was bottomed in that formation. An electric log was run last Thursday and the results must have been discouraging. Aside from this and the fact that two wildcats in Marion County were dry and abandoned the week was one of routine results. Sixty-seven oil wells were completed during the week and nine dry holes, the failures having been distributed by county as follows: One each in Bureau, Fayette, Schuyler, Clinton and White; two in Marion and two in Wabash.

Gulf Refining Co. has laid a 6-in. pipe line to connect its Centralia leases with the Gulf's main pipe line which runs from Oklahoma to the east. Gulf has prolific holdings in the Centralia area and last week completed No. 16 Buehler in Section 12-1n-1w good for 881 bbl. in 8 hours and No. 15 Marshall Buehler in Section 12-1n-1w good for 714 bbl. a day. Both wells had been acidized. Gulf was abandoning its Montgomery County wildcat in No. 1 Brandon, NW SE SE Section 1-10-5w at 2,523 ft. Is was dry all the way down.

Following were the completions of the week, the initial production of the oil wells representing 24 hours unless otherwise stated:

In Bureau County Kerchner's No. 1 Guither B, NE cor. SE SW SE Section 2-18n-8e of fourth principal meridian, dry and abandoned at 720 ft.

Marion County

In the Salem field in Marion County, Ohio Oil Co.'s No. 46 M. Young heirs, SE NE SE Section 17-2n-2e, McClosky lime at intervals at 2,048-2,106 ft., acidized with 2,000 gal., pumped 72 bbl. Texas Co.'s No. 9-A Sweney, NW NE NW Section 20-2n-2e, Benoist sand at 1,856-63 ft., pumped 60 bbl. W. C. McBride, Inc.'s No. 20 Leo, SE cor. NW NE SE Section 29-2n-2e, St. Louis lime top at 2,085 ft., Salem lime at 2,184 ft., casing perforated at 2,182-2,208 ft., pumped 2 bbl. of oil and 252 bbl. of water. Texas Co.'s No. 7 C. Bundy, NE SW NE Section 6-1n-2e, Benoist sand missing, Aux Vases sand at 1,786 ft., pay at 1,809-29 ft., shot with 20 qt. at 1,812-42 ft., flowed 371 bbl. Texas' No. 1-A Hill, SE NW SW Section 6-1n-2e, McClosky lime at 2,063-77 ft., pumped 175 bbl. Texas' No. 6 W. Carr-B, C S½ NE NE Section 7-1n-2e, McClosky at 1,942-55 ft. and 1,973-88 ft., 3,000 gal. of acid, flowed 630 bbl. Texas' No. 17 Bryant, SW SW NW Section 9-1n-2e, McClosky at 2,042-52 ft., 3,000 gal. of acid, pumped 35 bbl. Tide Water Associated Oil Co.'s No. 6 Miller, NW NE NE Section 18-1n-2e, McClosky from 2,052 to 2,086 ft. at intervals, acidized with 3,000 gal., flowed 400 bbl. Carter Oil Co.'s wildcat, No. 1 C. E. Prather, SE NW SW Section 28-1n-2e, dry and abandoned at 2,313 ft.

Fayette County

In the Louden field in Fayette County, Carter Oil Co.'s No. 6 Matson Reed, SE SE SE Section 11-8n-3e, shot with 60 qt. in Cypress sand at 1,437-56 ft., pumped 618 bbl. Carter's No. 1 Grubaugh, NW NE SE Section 23-8n-3e, Cypress sand at 1,500-39 ft., pumped 192 bbl. without a shot. Mabee Drilling Co.'s No. 3 Kepp, SW SE SW Section 31-8n-3e, Cypress at 1,541-51 ft., pumped 3 bbl. of oil and 35 bbl. of water. Mabee's No. 5 Kepp, SW SW SW, Section 31, shot with 15 qt. in Cypress sand at 1,576-86 ft., pumped 5 bbl. of oil, no water. Minerva Oil Co.'s No. 11 Tish, NW NW SE Section 33-8n-3e, Cypress at 1,459 ft., total depth 1,548 ft., pumped 120 bbl. without a shot. Minerva's No. 13 Tish, NE NW SE Section 33, Cypress at 1,462 ft., total depth 1,526 ft., pumped 70 bbl., no shot. Carter Oil Co.'s No. 21 H. Durbin, NW SE SW Section 4-7n-3e, Cypress at 1,514-25 ft. and Paint Creek at 1,563-78 ft., shot with 10 qt., pumped 86 bbl. L. B. Hoss' No. 7 Sealock, NW NE NW Section 19-7n-3e, Cypress at 1,535-59 ft., shot with 40 qt., pumped 140 bbl. Johnson's No. 7 Arnold, NE SE NW Section 19-7n-3e, Cypress at 1,556-70 ft., shot with 40 qt., pumped 25 bbl. Texas Co.'s No. 5 C. Wright, SW SE NW Section 31-6n-3e, Cypress pay at 1,600-14 ft., shot with 7 qt., pumped 20 bbl. Zephyr Drilling Co.'s No. 5 Smith, NE SW SW Section 31-6n-3e, Cypress at 1,588-1,604 ft., shot with 25 qt., pumped 300 bbl. Texas' No. 2 Eldridge, NE NE NE Section 6-6n-3e, Cypress sand at 1,592-1,608 ft., dry and abandoned.

In Schuyler County Thompson and others' No. 1 Eaton, SW NW SW Section 6-2n-3w of fourth principal meridian, dry and abandoned at 587 ft.

In Clinton County L. V. Garnier's No. 1 Tony, C W½ NW NE Section 30-3n-2w, Devonian lime topped at 2,555 ft., Dutch Creek at 2,600 ft., total depth 2,697 ft., dry and abandoned.

Devonian Lime Completions

Twenty-four Devonian lime completions were recorded in the Salem field during the week in review. Ohio Oil Co.'s No. 24 M. J. Young, NW SE NW Section 20-2n-2e, pay at 3,447-66 ft., flowed 73 bbl. naturally, in 3 hours; acidized with 5,000 gal., it flowed 222 bbl. in 3 hours. Ohio Oil Co.'s No. 44 M. Young heirs, SE SW SW Section 20-2n-2e, pay at 3,480-3,500 ft., 5,000 gal. of acid, flowed 369 bbl. in 6 hours. Ohio's No. 45 M. Young heirs, NE NW SW Section 20-2n-2e, pay at 3,476-94 ft., 5,000 gal. of acid, flowed 177 bbl. in 5 hours. Magnolia Petroleum Co.'s No. 33 D. A. Shanafelt, SE NW NW Section 21-2n-2e, pay at 3,466-3,507 ft., 3,000 gal. of acid, flowed 930 bbl. per day. Magnolia's No. 106 J. H. Young, SE SW SW Section 21-2n-2e, Devonian lime top at 3,397 ft., total depth 3,510 ft., 4,000 gal. of acid, flowed 1,497 bbl. per day. Magnolia's No. 36 W. B. Young, NE NW SW Section 21-2n-2e, Devonian top at 3,408 ft., total depth 3,511 ft., 3,000 gal. of acid, flowed 2,252 bbl. Haynes & Thomas' No. 3 F. Lee roadway, in NW NE SW Section 28-2n-2e, pay at 3,439-82 ft., 5,000 gal. of acid, flowed 1,872 bbl. per day. Magnolia's No. 101 J. H. Young, NE NW NW Section 28-2n-2e, pay at 3,445-3,505 ft., flowed 924 bbl. per day, naturally. Marvel Oil Co.'s No. 3 F. Lee roadway, NE cor. SW NE SW Section 28-2n-2e, pay at 3,456-92 ft., 5,000 gal. of acid, flowed 1,274 bbl. per day. Texas Co.'s No. 21 J. Chapman, NE NW SW Section 28-2n-2e, pay at 3,429-75 ft., 5,000 gal. of acid, flowed 536 bbl. per day. Ohio Oil Co.'s No. 23 M. J. Young, NW NE NW Section 28-2n-2e, pay at 3,440-59 ft., 5,000 gal. of acid, flowed 219 bbl. in 4 hours. Sheppard and others' No. 1 Greer, SW cor. NE SW Section 30-2n-2e, pay at 3,500-41 ft., 3,000 gal. of acid, flowed 1,572 bbl. per day through tubing. Texas Co.'s No. 16 Stroup, SE SW SE Section 30-2n-2e, pay at 3,364-3,404 ft., acidized with 3,000 gal., flowed 2,343 bbl. per day. Texas Co.'s No. 30 K. Wayman, NE NW NE Section 31-2n-2e, pay at 3,352-9[illegible] ft., acidized with 3,000 gal., flowed 8,031 bbl. in 24 hours. This well was reported in last week's review. It is on the same lease as the well which, before No. 30's performance, was credited with the largest potential per day, 13,000 bbl. However, this potential was based on a short-time flow, while the new well flowed the whole 24 hours, and thus is accounted the best well thus far completed in Illinois. Texas Co.'s No. 11 E. Farthing A, C S½ NW SE Section 32-2n-2e, pay at 3,407-46 ft., 3,000 gal. of acid, flowed 899 bbl. per day. Texas' No. 22 J. Friesner, SW NE NW Section 32-2n-2e, pay at 3,315-70 ft., acidized with 3,000 gal., flowed 940 bbl. per day. Texas' No. 24 J. Friesner, SW SE NW Section 32-2n-2e, pay at 3,330 ft., total depth 3,382 ft., 3,000 gal. of acid, flowed 1,630 bbl. per day. Texas' No. 13 F. Miller, C S½ NE SE Section 32-2n-2e, pay at 3,443-80 ft., 3,000 gal. of acid, flowed 1,083 bbl. per day. Texas' No. 15 W. Richardson, NW SW NW Section 32-2n-2e, pay at 3,300-30 ft., 3,000 gal. of acid, flowed 1,300 bbl. per day. Texas' No. 9 McCoy, SW NE NW Section 33-2n-2e, pay at 3,460-3,500 ft., 3,000 gal. of acid, flowed 1,193 bbl. per day. Texas' No. 10 Sands, pay at 3,488-3,524 ft., 3,000 gal. of acid, flowed 1,275 bbl. per day through 1½-in. choke. T. J. Gartland and others' No. 1 A. H. Mason, SE SW NW Section 4-2n-1e, Devonian top at 3,033 ft., total depth 3,074 ft., dry and abandoned.

In the south end of the Salem field Hollingsworth's No. 12 Kalkbrenne, NE SE SW Section 5-1n-2e, Devonian pay at 3,392-3,441 ft., shot with 12 qt. and acidized with 3,000 gal., flowed 250 bbl. per day. W. C. McBride, Inc.'s No. 7 Fyke heirs, NW SW SE Section 5-1n-2e, an old well deepened to the Devonian pay at 3,412-36 ft., acidized with 4,000 gal., pumped 72 bbl. of oil and 5½ bbl. of water. Texas Co.'s No. 22 Johnson, NE SE SW Section 5-1n-2e, pay at 3,428-40 ft., shot with 70 qt. and acidized with 3,000 gal., pumped 60 bbl.

White County

In White County Nation Oil Co.'s No. 4 Hammack, NE SW SE Section 31-3s-8e, shot with 25 qt. in Aux Vases sand at 3,230-58 ft., and acidized with 1,500 gal., pumped 40 bbl. of oil and 25 bbl. of water. Sun Oil Co.'s No. 3 Greathouse, NE SE NW Section 4-5s-14w, McClosky lime at 2,898-2,901 ft., flowed 231 bbl., naturally.

Yandell Rogers' No. 1 Holderby estate, NE NE NW Section 35-5s-9e, dry and abandoned at 2,043 ft. Penn Illinois Oil Co.'s No. 1 Porter, C E½ NE SE Section 12-6s-8e, in the Irons pool, an old well deepened from 3,130 ft. to 3,174 ft., acidized with 3,000 gal. at 3,134-74 ft., pumped 120 bbl. W. C. McBride, Inc.'s No. 1 Raney, SE NE SE Section 24-6s-8e, McClosky lime at 3,083-89 ft., pumped 89 bbl.

Eason & Angle's No. 10 Storms, SW NW SE Section 14-6s-9e, in the Storms pool, Waltersburg sand at 2,250-71 ft., flowed 175 bbl. Exchange Oil Co.'s No. 6 N. Storms, NW NW NE Section 14-6s-9e, Waltersburg at 2,247-76 ft., shot with 10 qt., flowed 226 bbl. Exchange's No. 7 N. Storms, SE NE NW Section 14-6s-9e, Waltersburg at 2,238-70 ft., shot with 10 and 15 qt., flowed 100 bbl. Lain Oil & Gas Co.'s No. 1 Storms, SW NE SW Section 14-6s-9e, Waltersburg at 2,222-51 ft., flowed 80 bbl. Skelly Oil Co.'s No. 4 Storms, NW NW SW Section 14-6s-9e, Waltersburg at 2,212-51 ft., shot with 20 qt., flowed 349 bbl. Exchange Oil Co.'s No. 2 Angle-Storms, C S½ NE NE Section 22-6s-9e, Waltersburg at 2,225-62 ft., flowed 103 bbl. in 12 hours and 15,000,000 cu. ft. of gas. Kingwood Oil Co.'s No. 2 Wilson, SW NW SE Section 6-6s-7e, Cypress sand at 2,658-85 ft., shot with 40 qt., flowed 224 bbl.

In St. Clair County H. Neuman's No. 1 Anderland, SW NW NE Section 33-1n-10w, dry and abandoned at 725 ft.

Centralia's Busy Field

The busiest field in the state is Centralia, in Clinton and Marion counties. A total of 151 locations, rigs, and wells drilling were rounded up in this week's review of operations in the field. Nearly all of these are planned to be drilled to the Devonian lime. Completions last week numbered seven wells with a combined initial production of 2,627 bbl. per day, or an average of 375 bbl. to the well. Following were the completions and their 24-hour initial output:

In the Clinton County side of the field Sappington

Oil Co.'s No. 1 Smith, 590 ft. from north and 770 ft. from east lines of SE Section 12-1n-1w, found Devonian lime pay at 2,910-25 ft., and pumped 75 bbl. of oil and 75 bbl. of water in 24 hours. Algona Oil Co.'s No. 3 Marshall, 628 ft. from south and 390 ft. from east lines of SW Section 12-1n-1w, pay at 2,926-34 ft., acidized with 1,000 gal., and flowed 729 bbl. L. Lilly and others' No. 4 Penn, 1,130 ft. from south and 400 ft. from east lines of SE Section 12-1n-1w, perforated casing at 2,906-17 ft., flowed 144 bbl. of oil and about 55 bbl. of water. J. D. Ethridge's No. 1 Leiber, NE cor. SE NE Section 13-1n-1w, pay at 2,909-20 ft., 110 bbl. a day, natural flow. Petro Corp., Ltd.'s No. 1 Kaelin, NW cor. SW SE NE Section 13-1n-1w, pay at 2,909-42 ft., acidized with 1,000 gal., pumped 192 bbl. Algona Oil Co.'s No. 3 Marshall, SE SE SW Section 12-1n-1w, acidized with 1,000 gal., flowed 729 bbl.

On the Centralia townsite in Marion County, Frazier & Slivka's No. 1 Frank, Lot 8, Block 9, Section 18-1n-1e, flowed 648 bbl. in 24 hours. A number of wells were in the near-completion class including L. Simmons' No. 1 Homa, in Section 18-1n-1e, which pumped 125 bbl. in 24 hours. A. M. Carey's No. 1 Ragsdale, in Section 7-1n-1e, which flowed 715 bbl. after a 2,500-gal. acid treatment; Smoky Oil Co.'s No. 3 Allison, Section 12-1n-1w, which flowed 1,641 bbl. a day after a 3,000-gal. acid treatment; Illinois Mid-Continent Oil Co.'s No. 3 Hefter heirs, in Section 13-1n-1w, a 205-bbl. well after a 1,000-gal. acid treatment, and Scott & Carey's No. 1 Starr, SW cor. NW NE SE Section 12-1n-1w, a 250-bbl. well after a 750-gal. acid dose.

In Wayne County

Roach & Voyles' No. 3 Milner, SE NW SE Section 33-1s-7e, dry and abandoned at 3,376 ft. It had showings of oil at intervals from 3,158 to 3,326 ft.

In Monroe County S. Brooks Remington's No. 4 Kolmer, NW NE NW Section 2-2s-10w, Trenton lime, acidized with 1,000 gal., from 408 to 460 ft., pumped 30 bbl. of oil and 12 bbl. of water.

Wabash County

In Wabash County W. N. Bartlett's No. 1-A Stansfield, SW SE SE Section 19-2s-13w, Cypress sand at 2,457-72 ft., shot with 30 qt., pumped 84 bbl. W. N. Bartlett's No. 3-A Stansfield, NW NE NE Section 30-2s-13w, Cypress at 2,461-78 ft., shot with 20 qt., pumped 375 bbl. Magnolia Petroleum Co.'s No. 2 Pifer, SW SE NW Section 17-2s-13w, dry and abandoned at 2,552 ft., Paint Creek sand topped at 2,537 ft. R. Ryan's No. 1 Seigert, NW NE NE Section 3-3s-14w, dry and abandoned at 2,589 ft.

In Edwards County Superior Oil Co.'s No. 2 Woods, NE cor. NW SW NW Section 19-2s-11e, Waltersburg sand at 2,370-80 ft., pumped 314 bbl. of fluid, 20 per cent water.

In Washington County H. Hubbard's No. 2 Fish, SE NE SW Section 14-3s-3w, Cordes pool, Benoist sand at 1,245-74 ft., shot with 21 qt., pumped 41 bbl. Magnolia Petroleum Co.'s No. 1 Frederking, SE NW NE Section 15-3s-3w, Benoist sand at 1,256-68 ft., shot with 4 qt., pumped 24 bbl.

New Wildcat Operations

In Edgar County Harry Dunn's No. 1 Weaver, 833 ft. from north and 760 ft. from east lines of NW Section 24-14n-14w, spudded and shut down.

In Shelby County J. L. Braden's No. 1 Ayars, C SW NW SW Section 5-12n-2e, location. W. B. Johnson Drilling Co.'s No. 1 Schaffee, 660 ft. from north and 182 ft. from west lines of NW NE Section 27-10n-5e, spudded.

In Clark County Bancroft and others' No. 1 Aetna Life, NW SW SE Section 7-11n-14w, moving in material.

In Jasper County R. Aten's No. 1 Mendenhall, SW SW SE Section 17-8n-10e, drilling at 860 ft.

In Fulton County an unnamed operator's No. 1 K. Frederick, NE cor. SE NW Section 10-7n-1e of fourth principal meridian, drilling at 165 ft.

In Bond County Thornwell's No. 1 Morris, NW NW NW Section 16-6n-3w, old well deepening, drilling at 1,360 ft. Unnamed operator's No. 1 Hunter, C NW SE Section 12-4n-14w, derrick on ground.

In McDonough County Oil Producers Syndicate's No. 1 Dixon, 1,060 ft. from north and 300 ft. from east lines of NW SW Section 8-5n-4w of fourth principal meridian, rigging up standard tools.

In Crawford County Fuller and others' No. 1 Barnes, NW NE SW Section 7-5n-11w, location.

In Wabash County L. V. Garnier and others' No. 1 Putnam, NE NE SW Section 3-1n-13w, rigging up rotary for a McClosky test. Burr Lambert's No. 1 Siller, SE SE SE Section 27-1s-13w, rigging up rotary.

In Edwards County Tide Water Associated Oil Co.'s No. 1 Bunting, SE SE NW Section 21-1s-10e, location for a McClosky test. Superior Oil Co.'s No. 1 Scott, SW SW NW Section 31-2s-11e, location for a McClosky lime test.

In White County Paul L. Miller's No. 1 Ford heirs, SE SW NW Section 22-4s-14w, rigging up rotary.

In Jackson County Barton & Shipman's No. 1 Hall, NW NW SW Section 8-9s-1w, set 8-in. casing at 67 ft.

Wildcat Progress

In Iroquois County Whitlow's No. 1 Gannon, NE SW SE Section 5-27n-12w, drilling at 801 ft.

In De Witt County Waharp Oil & Gas Development Co.'s No. 1 Nelson Short, drilling at 405 ft.

In Ford County Nelson, Erp & Stroh's No. 1 Erp, SW NW SE Section 19-24n-7e, drilling at 175 ft.

In Edgar County Pearcy's No. 1 Sholem, NW SE SE Section 13-14n-14w, shut down at 100 ft.

In Shelby County Walker's No. 1 Odell, C E½ SE NW Section 20-14n-2e, shut down at 2,000 ft. Baugher's No. 1 Anderson, NW cor. Section 36-12n-5e, drilling at 1,340 ft. Doran's No. 1 Compton, NE NW NE Section 22-10-4e, Cypress sand top at 1,665 ft., drilling at 1,800 ft. Turner's No. 1 Hoagland, NW NW SE Section 14-9n-4e, total depth 1,782 ft., underreaming to lower casing.

In Coles County Carter Oil Co.'s No. 1 Seaman, which was drilled through St. Peter sand to a depth of 4,908 ft., was plugged back to 2,085 ft., and casing perforated with 24 shots at 2,022-38 ft., and acidized with 2,000 gal. It swabbed 2 bbl. of fluid per hour for 5 hours, 50 per cent oil. Casing was recemented.

In Clark County Allen & Sherritt's No. 1 Biggs, NW NW SW Section 9-11n-14w, total depth 2,450 ft., treated with 1,500 gal. of acid, and flowed 70 bbl. of fluid in 12 hours by heads. It was not yet a completion. Harvey and others' No. 1-B Phillips, NW NE NE Section 18-11n-14w, Niagara lime top at 1,175 ft., shut down at 1,200 ft. Allen and others' No. 1 Morgan, NW cor. NE Section 31-10n-13w, total depth 481 ft., shut down for repairs. There was an oil showing at 472-81 ft.

In Montgomery County Brown's No. 1 Lipe, SW SW SE Section 28-10n-3w, shut down at 1,105 ft.

In Knox County Lomax' No. 1 Nelson, SE SW NE Section 20-10n-1e of fourth principal meridian, shut down at 195 ft.

In Montgomery County Poff and others' (formerly reported as Henderson and others) No. 1 Breitenbach, NW SW SE Section 13-9n-4w, shut down at 180 ft.

In Clark County H. R. Snavely's No. 1 Freeman, NE cor. SE NW Section 4-8n-11w, drilling at 2,035 ft.

In Crawford County Carl Robinson's No. 1 Walters, SE NW SE Section 19-7n-12w, set 10-in. casing at 86 ft. La Salle Drilling Co.'s No. 1 Wall, SW NW NE Section 9-6n-13w, total depth 1,903 ft., acidized with 1,000 gal., swabbed sulfur water; cleaning out.

In Jasper County Pure Oil Co.'s No. 1 Ida Warren-A, C W½ NE NW Section 33-6n-10e, derrick up. Pure's No. 1 Bigard-A, C N½ SE NW Section 33-6n-10e, total depth 2,827 ft., swabbed 45 bbl. of oil and salt water in 8 hours; acidized with 5,000 gal.; swabbed 60 bbl. of sulfur water and a showing of oil in 8 hours; after this test fluid rose in the hole 1,900 ft.; testing. Pure's No. 1 Boos Consolidated, C E½ SE SW Section 28-6n-10e, drilling at 761 ft. Pure's No. 1 Redman, C E½ NW NW Section 16-5n-10e, drilling at 3,700 ft., with a stain of oil at 3,504-15 ft.

In Bond County Roland's No. 1 Lindsey, SE NE NW Section 29-6n-3w, shut down at 430 ft.

In Madison County Wilson's No. 1 Danderman, SW cor. Section 1-5n-6w, drilling at 1,755 ft., in a hole full of water. Jennings and others' No. 1 Mossiman, SE SW NW Section 22-4n-5w, Trenton lime top at 2,702 ft., drilling at 2,742 ft., with no showing of oil.

In Fayette County Texas Co.'s No. 1 Grey, NW SE NE Section 1-5n-2e, drilling at 1,597 ft.

In Lawrence County Dee Miller's No. 1 Stout, NW NE SW Section 30-5n-13w, drilling at 2,610 ft. Bell Brothers' No. 1 Wampler, SE SE NE Section 27-5n-11w, drilling at 2,690 ft. (estimated depth). Payne's No. 1, SW NE NW Section 28-4n-11w, drilling at 1,514 ft. Dorsey's No. 1 Vandermart, SE SW NW Section 2-2n-12w, set 5⅛-in. casing at 1,729 ft., and drilling ahead. Dorsey's No. 1 Clark, NE cor. SE NE SE Section 3-2n-12w, drilling at 638 ft., had a show of oil at 600-36 ft.

In Crawford County Canadian Oil Co.'s No. 1 Goff, C E½ NW SE Section 16-5n-12w, underreaming at 1,350 ft., total depth 1,390 ft.

In Clay County W. C. McBride, Inc.'s No. 1 Landreth, NW NW NE Section 27-5n-5e, total depth 2,454 ft., acidized with 500 gal. and 750 gal., swabbed down and bailed 30 gal. of water and 35 gal. of oil in 7 hours; testing. Duncan, Inc.'s No. 1 Schilling, SE SE SE Section 32-4n-9e, Cypress pay at 2,602-08 ft., total depth 2,650 ft., set 5½-in. casing at 2,560 ft., getting ready to

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INDIANA

EVANSVILLE, Ind., May 13.—Two oil wells and a dry hole represented results in the Indiana fields in the past week. The flood situation is improving, but numerous wildcats in the northern counties are shut down.

Posey County

Sun Oil Co.'s No. 3 Miller, NW SE SW Section 1-7s-12w, Heusler pool, was completed. It pumped 155 bbl. in 24 hours after a 30-qt. shot at 1,864-76 ft. It also had an oil sand at 1,775-95 ft.

Brown, Ryan and others' No. 1 Spencer, C E½ SE SE Section 26-7s-15w, Posey County, is shut down at 2,882 ft. on account of high water. O. F. Kelley and others were rigging up rotary for No. 2 Hahn, NE NW SW Section 1-7s-12w; Paul Rossi's No. 1 Pendell, SW SE SE Section 30-6s-12w, was drilling at 545 ft.

Gibson County

J. E. Amis, Jr., completed No. 8 Cooper, NW NE NE Section 24-3s-14w, Griffin pool. It was shot with 5 qt. at 2,525 ft., bottom of a sand topped at 2,502 ft. The well pumped 160 bbl. in 24 hours.

Cherry & Kidd and others' No. 1 Dunn, SE cor. SW NE Section 17-3s-13w, had Renault top at 2,648 ft., and had to shut down at 2,671 ft. on account of high water. Lewis Production Co. had rig up for No. 8 Cooper D, NE SE NW Section 13-3s-14w.

High water was slowing up operations in Townships 3s-13w and 3s-14w.

A. J. Walker's No. 1 Schmidt, NW NE NW Section 24-3s-9w, was drilling at 1,060 ft. S. M. Kernan's No. 1 Brown, C E½ Section 12-3s-9w, is drilling at 925 ft. L. B. Jackson's No. 1 Barthold, NW NW SW Section 23-2s-9w, was drilling below 410 ft. A. L. Braden and others' No. 1 Knight, NE cor. SW SW Section 2-2s-11w, drilling below 1,070 ft. L. B. Jackson's No. 1 Bauer, SW SE SE Section 10-2s-9w, rigging up standard tools. K. T. & F. Oil & Development Co.'s No. 1 Shoultz, NE cor. SE Section 18-1s-9w, shut down at 1,262 ft.

Spencer County

Jack Warner and others have machine in to start No. 1 Harvey, NW cor. SW NW Section 4-8s-6w, in Spencer County. In the same county C. J. Williams was rigging up machine for No. 1 Walker, NE NE NW Section 6-8s-6w; Harry Appell, Rhodes & Taylor and others were rigging up No. 1 Thomas, NW SE NE Section 12-7s-8w. Mecca Oil Co. made a location for No. 1 Seay, 330 ft. from north and 230 ft. from west lines, NW SW Section 32-7s-6w. Hedges and others' No. 1 Eble, SW NW NW Section 7-7s-7w, was spudding; Snell and others' No. 1 Crowder, NW cor. SW

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WESTERN KENTUCKY

OWENSBORO, Ky., May 13.—The most important event of the week in the western Kentucky fields was the discovery of a new producing horizon in the extension of the Utica pool in Daviess County which yielded a 50-bbl. well from a stray sand at 989-99 ft. Four oil wells and four dry holes were reported, one of the failures having been drilled to the Devonian lime and another to the McClosky lime. Following were the completions and new operations:

Butler County, Huntsville district: Billy Phillips' No. 1 Gardner heirs, 20-bbl. well in Jones sand, 391-411 ft.

Daviess County, Handyville district: Master Oil Co.'s No. 2 W. W. Davis, a 40-bbl. well in Jett sand, total depth 1,234½ ft. Utica district: H. C. Farmer and others' No. 1 Vernor Fitts estate, estimated 50 bbl. a day from stray sand at 989-99 ft., after a shot with 40 qt. This is a new producing horizon for the extension of the Utica pool to the northeast. Foursome Oil Co.'s No. 1 Roy Hansford, 6-acre tract, 65 bbl. in Bethel sand at 1,458-80 ft., total depth 1,542 ft.; shot with 100 qt. Masonville district: J. C. Miller, trustee, and others' No. 1 J. W. Ruby, moving in.

Hancock County, 3 miles southwest of Cloverport: John Richards and others' No. 1 Margaret McGavock has 6½ ft. of McClosky saturation at 493½-500 ft. It will be acidized. Saunders School district: W. J. Flesher's No. 4 Jane Saunders, Barlow sand at 508-26 ft., total depth 526 ft.; will shoot.

Henderson County, Harrison Island in Ohio River:

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Rocky Mountain Area

By T. R. INGRAM

Wyoming's Largest Well of Year in Lance Creek Field

DENVER, Colo., May 13.—The possibility of developing new oil pools in the Wasatch formation of Tertiary age over a wide area in Colorado and Wyoming was enhanced when drill-stem tests in the Mountain Fuel Supply Co.'s No. 5-A Wilson, in northwestern Colorado indicated that it will make at least a 500-bbl. well from three sands at shallow depths.

The Derby Dome Oil & Gas Co.'s No. 2 Baxter, a wildcat northeast of Denver, was abandoned after testing the Hygiene sand without results.

The largest well of the year in Lance Creek resulted from the completion of the Minnelusa Oil Corp.-MacKinnie Oil & Drilling Co.'s No. 10 Thompson, which flowed 160 bbl. an hour through the tubing. Lance Creek had two other completions, both average wells. The General Petroleum Corp.'s test of the Shannon sand on Cole Creek indicates a good well in a new horizon which apparently will be productive over a large area.

In Montana there were two completions and three new operations in Cut Bank and four completions and five new operations in Kevin-Sunburst. Other new operations include two on the Hiawatha structure in Colorado by the Mountain Fuel Supply Co., and two in Lance Creek.

NEW MEXICO

Eleven completions in southeastern New Mexico fields the past week included six producers in the Lea County pools and five in Eddy County.

One of the larger Lea County producers completed was in the Vacuum field at Ohio Oil Co.'s No. 6 State-Warn, NW NE SW Section 6-18-35. It topped pay at 4,550 ft., total depth 4,690 ft., and had natural flow of 408 bbl. of 37-gravity oil in six hours. Two-inch tubing was set at 4,673 ft.

In the same field, Magnolia Petroleum Co. completed No. 61 State-Bridges, C NW SE Section 14-17-34, was shot and flowed 378 bbl. of oil in 20 hours from pay topped at 4,674 ft., total depth 4,616 ft. Other southeastern New Mexico completions were as follows:

Lea County

Humble Oil & Refining Co.'s No. 1-M State, C NW SE Section 18-22-37, South Eunice field, had pay at 3,612 ft., total depth 3,715 ft., and flowed 436 bbl. of oil naturally in 8 hours, through tubing choke.

Continental Oil Co.'s No. 3 State F-1, C NE SE Section 1-21-36, Eunice field, was shot at 3,646-3,746 ft. and had initial daily yield of 77 bbl. of oil. Pay was topped at 3,650 ft., total depth 3,746 ft. Shell Oil Co.'s No. 3-A State, SW SW NE Section 12-21-35, found pay at 3,790 ft., was bottomed at 3,880 ft., was acidized and flowed 220 bbl. of oil through open tubing in 24 hours. E. G. Woods' No. 2 Simon, C SW NE Section 29-17-32, flowed 130 bbl. of oil, with 1,000,000 cu. ft. of gas, in 20 hours, from pay found at 3,754 ft., total depth 3,782 ft.

Eddy County

Carper and others' No. 3-A State, SW NW NE Section 32-17-30, Loco Hills area, Eddy County, topped pay at 3,090 ft. and was bottomed at 3,135 ft., was shot and flowed 100 bbl. of oil daily through tubing. Jones and others' No. 1-B Robinson, SE SW SW Section 35-17-29, flowed 50 bbl. of oil daily from pay topped at 2,707 ft., total depth 3,004 ft. Flynn and others' No. 3 Langford, SE SW NW Section 9-18-29, entered pay at 2,425 ft., total depth 2,650 ft., and flowed 75 bbl. of oil daily. Brewer Drilling Co.'s No. 1 Brooks, SW SE SW Section 14-18-30, flowed 21 bbl. of oil an hour for 16 hours through tubing, producing from pay topped at 3,298 ft., total depth 3,314 ft. Macy, Tallmadge and others' No. 1 State, SE SE SW Section 32-17-29, had pay at 2,536 ft., was bottomed at 2,636 ft., plugged back to 2,602 ft. and swabbed 65 bbl. of oil daily.

Max Weathers' No. 1 Flood, SE SE Sec. 24-18-23. Drlg. 628 ft.
M. Yates, Jr.'s No. 1 McCall, SW SW Sec. 24-18-26. Drlg. 700 ft.
Jack Harris' No. 1 Josey, SW SE Sec. 19-20-23. Spd. and S.D.
Schumacker's No. 1 Levers, NE NE Sec. 33-16-29. Loc.
J. B. Mulcock's No. 1 Etz, 660 ft. from S and W lines, Sec. 25-16-30. Drlg. 1,050 ft.
Everts' No. 1 Greer, SE cor. Sec. 31-16-31. P.B. 3,690 ft.; swbd. 5 B.O.P.D. for 7 days; tstg.
Everts & Moran's No. 1 Ranuz, NE NW Sec. 18-23-26. T.D. 375 ft.; S.D.
J. B. Cowden's No. 1 State, SW SE Sec. 3-17-29, between Root field and High Lonesome field. M.I.M.
G. A. Grober's No. 1 Wright, 1,080 ft. from N and W lines, Sec. 25-18-28. Tstg. S.O.&G. 1,382 ft.; est. 10 B.O.P.D.; prep. D.D. 1,833 ft.
G. M. Cone's No. 1 Hare, NW NW NE Sec. 14-16-28, 3 mi. W of High Lonesome field. Drlg. 1,000 ft.
Artesia Drlg. Co.'s No. 1 Hoffman, SE SE SE Sec. 14-17-24. S.D.R. 975 ft.; est. 1,250,000 cu. ft. gas at 938 ft.; drlg. 1,052 ft.
L. E. Elliott's No. 1 Elliott, SE SE SE Sec. 24-17-29. S.S.O. 3,255-75 ft.; S.D.O. 3,482 ft.; made 1 B.O. and 4 B.W. in 24 hrs.; drlg. 3,705 ft.
Anderson's No. 1 Neeson, 330 ft. from W and 2,310 ft. from N lines, Sec. 4-16-30. Prep. D.D. 2,650 ft.
Clark & Cooper's No. 1 Gates, 1,980 ft. S and E lines, Sec. 20-16-27. S.D.O. 2,500 ft.
Frederick's No. 1 Reed, 1,980 ft. from S and W lines, Sec. 28-24-38. O.W.D.D.; est. 1,500,000 cu. ft. gas at 2,300 ft.; U.R. 2,665 ft.; T.D. 2,893 ft.
Wilder's No. 1 Young, 1,650 ft. from N and W lines, Sec. 23-16-29. S.G. 1,805 ft.; S.D.O. 3,095 ft.
Sam Montgomery's No. 1 Kaltenbach, 330 ft. from N and W lines, Sec. 24-16-27. Fsg. tools 2,243 ft.
Thomas & Bowers' No. 1 H. W. Etz, 2,310 ft. from N and 330 ft. from W lines, Sec. 13-16-30. T.D. 3,744 ft.; 2,000 ft. F.I.H.

Dona Ana County

Picacho O. & G. Co.'s No. 12 Armstrong, Sec. 15-23s-1w. S.D.O. 2,620 ft.
Slack & Mahres' No. 1 Simmons, Sec. 35-22s-5e. T.D. 2,785 ft.; S.D.O.

Chaves County

Farrar-Jones-Cunningham's No. 1 Samples, 330 ft. from S and E lines, Sec. 1-7-27. S.D.R. 98 ft.

Luna County

O. D. Berry's No. 2 Berry, Sec. 33-22-10. S.D.R. 145 ft.

Lea County

J. D. Barefield's No. 2 Stroup, 1,980 ft. from N and E lines, Sec. 12-18-32. Drlg. 3,817 ft.
Stogner & Weiner's No. 1 State, SE SE Sec. 30-12-32. U.R. at 960 ft.; T.D. 1,228 ft.
Stanley & Weiner's No. 1 Saunders, NE NE Sec. 20-21-38. C.&P.

Otero County

Ernest's No. 1 Ernest, Sec. 20-25-7. Straightening hole 2,993 ft.
Otero Oil Co.'s No. 1 State, SE NW Sec. 5-22-10. S.D.O. 825 ft.

Socorro County

Joiner Oil Corp.'s No. 1 Belen grant, 2,310 ft. N and W lines, Sec. 16-3-1. S.D. 600 ft.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc.'s No. 2 North Albuquerque, NE SE NW Sec. 19-11n-4e. Drlg. 4,760 ft.
Norins Realty Co., Inc.'s No. 2 Pajarito, Sec. 22-9n-1e. S.D. 2,000 ft.

McKinley County

Petroleum Products Corp.'s No. 7 Hospah, C SW SW Sec. 36-18n-9w. Spd. to 50 ft.; S.D.

San Juan County

Following the drilling of its No. 100 Rattlesnake to the Pennsylvanian with only nominal results, the Continental Oil Co. has a seismograph crew working to the north and east of the Rattlesnake field seeking to locate the high in the deeper horizons. Upon the results will depend the drilling of another deep test. Three wells so far have been drilled to the lower formations. These were located on top of the structure as mapped on the Dakota but apparently there is a nonconformity below that horizon. The Continental refinery at Farmington draws its crude supplies from the Rattlesnake and Table Mesa fields. They are running an aggregate of between 500 and 600 bbl. per day. Table Mesa is drilled up in the shallow sand and the capacity of the Rattlesnake field in the Dakota apparently has reached its limit. Due to the present insufficiency of the crude supply the refinery is reported operating at reduced capacity and the company's plant at Albuquerque will be shut down temporarily. The company is reported preparing to do some exploratory drilling in northwestern New Mexico in the hope of increasing its crude supply.

Continental Oil Co.'s No. 105 Rattlesnake, NE SW SW Sec. 12-29n-19w. Drlg. 826 ft.

Valencia County

C. A. Grober et al's No. 1 Fuqua, NE NE Sec. 19-5n-3e. T.D. 3,850 ft.; C.O. below 3,100 ft.

COLORADO

Adams County

The Derby Dome Oil & Gas Co.'s No. 2 Baxter, C SE SW Section 2-3s-66w, 10 miles northeast of Denver, a wildcat in an area which has been much in the limelight since 1934, was plugged and abandoned at 2,672 ft. It was a southeast offset to No. 1 Baxter, which was started 6 years ago and which under several reorganizations drilled to 4,704 ft. It was reported to have had a show of gas in the Hygiene in sand at 2,065-95 ft. and another, estimated at several million cubic feet per day, at 2,640-46 ft. On the basis of these showings, C. E. Schlemeyer and associates, of Kansas, took over the operation, organized a new company, and put down the second test. The horizons in the first well which were reported to have contained the shows were composed of about 80 per cent shale in the second test and contained nothing of importance.

El Paso County

F. F. Hintze et al's No. 1 State, CSL SE SE Sec. 16-11s-60w. T.D. 1,125 ft.; cmtd. caves; W.O.C.

Jackson County

W. N. W. Corp.'s No. 1 North Park Coal, NW NW Sec. 18-9n-78w. S.D. 4,350 ft.

Larimer County

Continental Oil Co.'s No. 1 Whitaker-Blunck, NE NE NW Sec. 30-8n-68w. T.D. 4,504 ft.; prep. to D.D.
Ed Shogren et al's No. 1 Frazier, SE Sec. 31-4n-69w. S.D. 910 ft.; to change over to C.T.

La Plata County

Nick Spatter's No. 1-X Bryce, C SW SW Sec. 31-33n-9w. Drlg. sh. below 3,800 ft.

Logan County

The West Plains Oil Co.'s No. 1 Sheldon picked up a stratum of brown lime at 1,480-82 ft. which the driller identifies as a marker found at 2,182 ft. in the Willard well drilled 18 miles to the south several years ago. H. C. Beeler, company geologist, says he is not ready to say that the two horizons correlate, but that undoubtedly the West Plains well is running several hundred feet higher than the Willard test. It is drilling ahead at 1,512 ft.

West Plains Oil Co.'s No. 1 Sheldon, SE NW SW Sec. 3-10n-55w. Drlg. 1,512 ft.

Moffat County

Drill-stem tests in the Mountain Fuel Supply Co.'s No. 5-A Wilson, in the Hiawatha field, indicates that the well will make better than 500 bbl. per day from three sands, with the hole at a total depth of 2,592 ft. Recent developments in this area in northwestern Moffat County, Colorado, and southwestern Sweetwater County, Wyoming, by the Mountain Fuel Supply Co., a close affiliate of the Ohio Oil Co., is accepted as definitely proving the oil possibilities of the Wasatch formation of Tertiary age in the northern Rocky Mountain area.

The acreage in the Hiawatha-Vermillion Creek area was assembled by W. A. Myers, who believed it to be largely a gas region, and a pipe line was built to Salt Lake City in 1929 and gas has been delivered in Utah in large volumes, as much as 50,000,000 cu. ft. daily in peak times.

Mountain Fuel Supply Co.'s No. 2 Kuykendall, SE NE SE Sec. 22-12n-100w. M.I.M.; (first report).

Mountain Fuel Supply Co.'s No. 6 Wilson, C Lot 2, SE Sec. 14-12n-100w. Loc.; (first report).
Mountain Fuel Supply Co.'s No. 5 Wilson, SW SW NW Sec. 23-12n-100w. Cmtd. 7-in. on bttm. at 2,592 ft.; prep. to test.
Great Divide Pet. Co.'s No. 1 Wyatt, SE Sec. 4-6n-92w. T.D. 724 ft.; res. C.O.; 10-in. frozen at 650 ft.

Ouray County

Ridgway Pet. Synd.'s No. 1 Bennett, C NE SE Sec. 2-45n-8w. Drlg. below 100 ft.

Park County

South Park Oil Co.'s No. 1 Leman, NE NE SE Sec. 34-11s-75w. Drlg. sd. 7,234 ft.; S.O.&G.

Rio Blanco County

W. L. W. Royalty Corp.'s No. 1 Rector, SE Sec. 34-2n-102w. Loc.
Texas Co.-California Co.'s No. 3 Unit, NE NE NE Sec. 27-3n-94w. Drlg. 3,376 ft.

WYOMING

Carbon County

Sinclair-Wyoming Oil Co.'s No. 14 Unit, NW SW NE Sec. 7-26n-89w. Drlg. below 500 ft.
MacKinnie Oil & Drlg. Co.'s No. 2 Union Pacific, NE SE NE Sec. 21-22n-78w. M.I.M.
Ohio Oil Co.'s No. 12 State, CWL NE Sec. 34-20n-78w. Loc.
Tri-State O. & R. Co.'s No. 17, NW SE NW Sec. 20-21n-80w. S.D. 585 ft.

Crook County

Union Oil Co. of Calif.'s No. 1 Casey, SE NE NW Sec. 3-57n-62w. B.R.
Vickers Pet. Co.-Continental Oil Co.'s No. 1 Duncan-Lobban, NE NW SW Sec. 28-57n-64w. M.I.M.

Fremont County

Sinclair-Wyoming Oil Co.'s No. 12 Unit, SW SE NW Sec. 23-32n-95w. R.U.R.

Natrona County

A new and important producing horizon in the Cole Creek district, 13 miles northeast of Casper, has been opened up in the Shannon sand by the General Petroleum Corp.'s No. 1-21-G, NW NW NW Section 21-35n-77w. The well was drilled to the Lakota at 8,050 ft with unfavorable results. It then plugged back and perforated the casing opposite the Shannon sand at 4,530-70 ft. with good results. It first swabbed at the rate of 400 bbl. per day. Last Tuesday it made one flow of 18 bbl. and after being shut in for an hour it made 55 bbl. in 1 hour and then was again shut in. After running tubing it flowed an average of 8 bbl. an hour for 48 hours. It will be given a pumping test as soon as equipment is installed. The oil has a paraffin base and tests 35.2° in gravity. The sand has a porosity of 16 to 19 per cent.

Lewis Gebhart's No. 1 Govt., NW NE SE Sec. 10-39n-78w. Spdg.
Continental Oil Co.'s No. 1 McGrath, C NW SW Sec. 15-34n-78w. Drlg. r.b. 7,690 ft.
Royal Oil Corp.'s No. 1, SW SW SW Sec. 26-35n-80w. Cmtd. 12½-in. 103 ft.; drlg. 153 ft.
Connelly Drlg. Co.'s No. 1 State, SW SW NW Sec. 36-36n-81w. T.D. 1,420 ft.; C.O. to res.

Niobrara County

Lance Creek had three completions, one of which proved to be the largest well of the year, in Wyoming, and two new operations.

The Minnelusa Oil Corp.-MacKinnie Oil & Drilling Co.'s No. 10 Thompson, NW NW NE Section 7-35n-65w, an inside well on the west side of the field, flowed 160 bbl. an hour or at the rate of 3,840 bbl. per day through the tubing at 5,258 ft., total depth, from the Leo sand at 5,224-58 ft.

The Continental Oil Co.'s No. 6-B Dielman, NE SW NW Section 8-35n-65w, an inside well, was plugged back from 5,490 ft. to 5,471 ft. and completed in the Leo sand at 5,460-71 ft. for 546 bbl. the first 24 hours.

The Minnelusa Oil Corp.-MacKinnie Oil & Drilling Co.'s No. 9 Thompson, NW SE NW Section 7-35n-65w, had an initial production of 600 bbl. from the Leo at 5,331-61 ft. after acidizing with 1,000 gal. Total depth is 5,361 ft.

Argo Oil Co.'s No. 13-A Elliott, SE NE NW Sec. 5-35n-65w. B.R.; (first report).
Ohio Oil Co.'s No. 16 Lamb-1, NW NE NE Sec. 5-35n-65w. Drk.; M.I.M.; (first report).
Continental Oil Co.'s No. 7 Sam Joss, NW SW NE Sec. 6-35n-65w. Rig: W.O. equip.
Continental Oil Co.'s No. 11 Otto Rohlff, SE NE SE Sec. 31-36n-65w. Cmtd. 10¾-in. at 312 ft.; W.O.C.
Ohio Oil Co.'s No. 14-E. Lamb-Acct. 2, C SW SE Sec. 5-35n-65w. Drlg. 3,030 ft.
Continental Oil Co.'s No. 3 E. Rohlff, SE SW NW Sec. 32-36n-65w. Drlg. 3,275 ft.
Continental Oil Co.'s No. 7-B Dielman, SE SE NE Sec. 7-35n-65w. Drlg. 5,001 ft.
Ohio Oil Co.'s No. 16 Putnam, SW SW NW Sec. 4-35n-65w. Drlg. 4,725 ft.
Ohio Oil Co.'s No. 15 Carrie Putnam, NW NE SW Sec. 33-36n-65w. T.D. 5,541 ft.; trying to free D.P.
H. D. Moore's No. 1 Berggren, SE NW Sec. 23-35n-63w. T.D. 2,526 ft.; rng. 4½-in. for W.S.O.

Park County

Yale Pet. Corp.'s No. 2 Owens, NE SW SW Sec. 29-52n-100w. C.&P.
Yale Pet. Corp.'s No. 2 Frisby, NW SE NW Sec. 32-52n-100w. T.D. 3,431 ft.; cmtd. 7-in. on T. sat. Embar at 3,426 ft.
Yale Pet. Corp.'s No. 1-B Frisby, SW NE NE Sec. 31-32n-100w. C.&P.
Minnelusa Oil Corp.'s No. 1 Roney, SW SW NW Sec. 24-58n-98w. Drlg. 2,540 ft.

Sublette County

North La Barge Oil Co.'s No. 1 Govt., NE SE NE Sec. 28-27n-113w. T.D. 992 ft.; R.U.C.T. to D.D.
Yellowstone Oil Co.'s No. 1 Henry Budd, SW SE SE Sec. 6-30n-112w. T.D. 1,070 ft.; U.R. 10-in. to 986 ft. for W.S.O.
Texas Co.'s No. 1-E. NW Sec. 27-27n-113w. Drlg. 684 ft.; 13-in. cmtd. at 85 ft.
Marvel Oil Co.'s No. 1-H Govt., CEL NE SE Sec. 28-27n-113w. Drlg. 700 ft.
North La Barge Oil Co.'s No. 3 Govt., SE SE NE Sec. 28-27n-113w. Cmtd. 10¾-in. at 80 ft.; drlg. ahead.

Sweetwater County

Gus Pagrantz et al's No. 1 Clark, C NW NE Sec. 22-19n-104w. M.I.M.
Sinclair-Wyoming Oil Co.'s No. 63-A, SW NW NW Sec. 11-26n-90w. Drlg. 1,720 ft.
Red Desert Corp.'s No. 1 Aspden, NW SW NW Sec. 34-18n-103w. B.R.
Vermillion Oil Co.'s No. 2 Govt., SW SW SW Sec. 7-12n-99w. Drlg. 2,570 ft.

MONTANA

While Montana production in March was up 525,366 bbl. from all fields as reported by the state Conservation Board, there was a drop of 83,198 bbl. in storage. The total at the end of the month was 1,240,264 bbl. as against 1,324,462 bbl. at the end of February. Heaviest withdrawal was from Cut Bank, which showed a decrease of 47,683 bbl. Kevin-Sunburst was second with a total decline of 28,812 bbl. in storage oil.

Choteau County

Security Pet. Corp.'s No. 1 Johnson, C NE NE Sec. 23-26n-3e. T.D. 2,122 ft.; show heavy oil in T. Embrick sd. at 2,091 ft.; U.R. 6⅝-in. to carry to T. of Mad.

Fallon County

Montana-Dakota Utilities Co.'s No. 140, SE NW NE Sec. 24-9n-58e. Cedar Creek dist. Loc.

Fergus County

C. E. Emmons et al's No. 3, CWL NW NW Sec. 5-21n-18e. Winifred dist. Drlg. Claggett sh. at 80 ft.

Glacier County

Cut Bank had two completions and three new operations. The best well was the Consolidated Gas Co.'s No. 2 Frary-Tribal-172, NW cor. Section 18-32n-5w, in the south end of the field. It was completed at 2,903 ft. and swabbed 240 bbl. the first 24 hours from the Cut Bank at 2,850-95 ft. Main pay was at 2,876-95 ft. and oil rose 1,300 ft. in the hole. The Sunburst at 2,795-2,860 ft. had a show.

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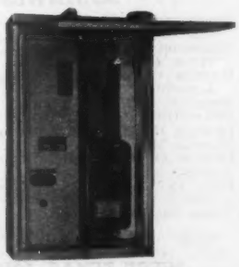

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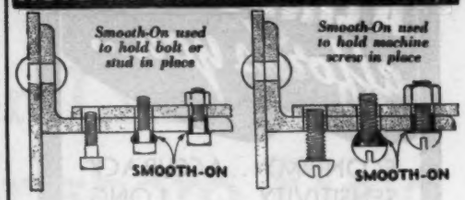

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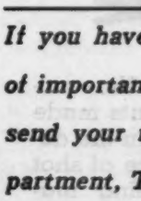

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The other completion was the Santa Rita Oil & Gas Co.'s No. 4-A Government, C SE NE Section 8-32n-5w, which swabbed 25 bbl. the first 24 hours at 3,007 ft., total depth, from the Cut Bank at 2,982-3,000 ft.

Glacier Prod. Co.'s No. 4 Corrigeux, C SE SW Sec. 28-33n-5w. Spdg.; (first report).
Consolidated Gas Co.'s No. 3 State, SE NW SE Sec. 26-35n-6w. M.I.M.; (first report).
Santa Rita O. & G. Co.'s No. 3 Rasmussen, C NW SE Sec. 32-33n-5w. M.I.M.; (first report).
Texas Co.'s No. 2 Unit 11, SE NW Sec. 11-35n-6w. Drlg. 421 ft.
Glacier Prod. Co.'s No. 3 Whetstone, C SE NW Sec. 8-33n-5w. Drlg. 1,915 ft.
Glacier Prod. Co.'s No. 5 Bonnet, C NW SE Sec. 4-32n-5w. Str. cr. hole at 160 ft.
Texas Co.'s No. 5 State, C NE NE Sec. 16-32n-5w. Drlg. 1,160 ft.; Colo. 620 ft.; 10¾-in. 638 ft.
Texas Co.'s No. 5 Curran, C NW SE Sec. 8-32n-5w. Cmtd. 10¾-in. at 647 ft.; T. Colo. 615 ft.
A. Kately's No. 1 Kramer, NE SE NE Sec. 15-34n-6w. Drlg. 2,540 ft.
Castle-Pardee's No. 2 Tarrant-Corriguex, SE NE NE Sec. 2-33n-6w. Drlg. 200 ft.
Santa Rita O. & G. Co.'s No. 5 Lander, NE SW SE Sec. 16-35n-6w. Drlg. 2,740 ft.
Texas Co.'s No. 4 Tweedy, C SE NW Sec. 21-35n-6w. T.D. 2,555 ft.; sdtrkg.
A. B. Cobb's No. 5 Van Demark, CSL SE NE Sec. 35-35n-6w. Cmtd. 7-in. 2,776 ft.; W.O.C.
Helmac, Tr.'s No. 3 Govt., Lot 3, Sec. 32-33n-5w. Drlg. 2,190 ft.
Cobb-Reagan's No. 4 Jackson, SW SW SE Sec. 5-32n-6w. R.U.R.

Petroleum County

H. Clark Rowland's No. 1 Brundige-Mink, NE SE NW Sec. 35-14n-25e. T.D. 722 ft.; 8⅝-in. on bttm.; prep. to res.
Watson Oil Co.'s No. 1 Austed, SW NW SE Sec. 22-13n-28e. T.D. 1,540 ft.; C.O. at 1,450 ft.

Pondera County

Ted Hawley's No. 3 State, NW SE SE Sec. 16-27n-4w. Drlg. 1,400 ft.

Toole County

Kevin-Sunburst had four completions and five new operations.

A. Beardsley's No. 13 Swears, CEL SE NW Section 9-35n-2w, pumped 25 bbl. per day from the contact at 1,643-47 ft. after acidizing with 500 gal.

Prevol & Shay's No. 5 Government, SE NW SW Section 11-35n-3w, plugged back from the Madison at 1,845 ft., total depth, to 1,659 ft. to save gas in the Sunburst. It is estimated at 500,000 cu. ft.

Morton & Shaw's No. 2 Ellingson, SE NE NW Section 23-35n-3w, swabbed 35 bbl. per day from the contact at 1,720-24 ft. It showed no water.

The Lemac Oil Co.'s No. 1 Boyce, C NE NE Section 27-36n-2w, was plugged and abandoned at 1,906 ft. after acidizing at 1,900-06 ft. without results.

Most interesting location was William Hanlon and others' No. 1 Merton Mortgage, a wildcat 10 miles north of the nearest production, in the Wilshaw Flats district.

Wm. Hanlon et al's No. 1 Merton Mortgage, C SW SE Sec. 6-37n-1w. M.I.M.
Coolidge & Coolidge's No. 6-A State, SW NW NW Sec. 36-36n-2w. Drlg. 110 ft.
O. A. Nepstad's No. 1 Hugi, NW SW NW Sec. 11-35n-3w. R.U.
G. & A. Oil Co.'s No. 15 Goeddertz, CEL NE SW Sec. 23-35n-3w. R.O.G.
Adams-Hessla's No. 6 McManus, C SE SE Sec. 21-35n-2w. Loc.
Big West Oil Co.'s No. 2 Ellingson, CWL SE SW Sec. 14-35n-3w. Drlg. 1,400 ft.
G. & A. Oil Co.'s No. 4 Goeddertz, C SE NW Sec. 16-35n-3w. T.D. 1,588 ft.; set 6⅝-in.
Henry Vander Pas' No. 4 Cedar Creek, CWL SW SE Sec. 31-35n-1w. S.D. 420 ft.
Coolidge & Coolidge's No. 8 Shaw, NW NE NE Sec. 35-36n-2w. T.D. 1,558 ft.; Sunburst 1,530-58 ft.; 200 ft. O.I.H.; shot with 30 qt.; C.O.
Rimrock Oil Co.'s No. 5 Schmidt, SW SE NW Sec. 29-35n-3w. T.D. 1,789 ft.; acd. 500 gal.; C.O.
S. V. Day's No. 1 Halter, C NE SE Sec. 17-35n-2w. S.D. 540 ft.
Fulton Pet. Co.'s No. 4 Thompson, CNL SW NE Sec. 28-35n-3w. Drlg. 1,400 ft.
Prevol & Shay's No. 6 Govt., NE NW SW Sec. 11-35n-3w. R.O.G.
Crumley & Son's No. 18 Fryberger, CEL SE SW Sec. 24-35n-3w. T.D. 1,579 ft.; contact 1,565-79 ft.; good S.O.; will acd.
G. H. Lund's No. 1 Dahlen, C SE NW Sec. 35-35n-4w. T.D. 2,185 ft.; drlg. plug after second sqz. job.
R. G. Parrant's No. 1 Holbrook, C NW NE Sec. 2-36n-3w. T.D. 1,400 ft.; cmtd. 7-in.
Casper T. Olen's No. 9 Engemoen, NW NE NW Sec. 14-35n-2w. S.D. 70 ft.
Frazer & Smith's No. 2 Van Note, NE SW NW Sec. 30-35n-2w. T.D. 1,542 ft.; contact 1,500-30 ft.; 500 ft. O.I.H.

UTAH

Daggett County

Mountain Fuel Supply Co.'s No. 1 Govt., SE NE NE Sec. 19-3n-24e. Drlg. 549 ft.; cmtd. 13⅜-in. at 366 ft.

Grand County

Reeder Corp.'s No. 1 State, NE NE NE Sec. 16-22s-19e. Drlg. 1,060 ft.

Summit County

Longwell Pet. Co.'s No. 1, SE SW SE Sec. 35-3n-5e. T.D. 3,274 ft.; tstg. S.O. in sd. at 3,256-74 ft.

SOUTH DAKOTA

Butte County

Two Top O. & G. Co.'s No. 2, SE NE Sec. 30-10n-6e. T.D. 2,725 ft.; rng. Schlmb. test; Muddy at 2,550-75 ft.; had S.O.&G.

MID-CONTINENT CRUDE RUNS

(Continued from Page 291)

Company and location—	Daily capacity	Av. dly. runs— May	April
Rodessa Oil & Ref. Corp., Cedar Grove	12,000	8,500	8,000
Stanolind Oil & Gas Co., Superior	5,000	2,200	2,325
Texas Co., Shreveport	7,000	(*)	(*)
Total	65,550	39,225	36,375

*Shut down.

EAST TEXAS

Beacon Oil & Ref. Co., Henderson	4,500	(*)	(*)
Danciger Refs., Inc., Longview	6,000	(*)	(*)
East Texas Ref. Corp., Longview	10,000	5,000	3,500
Gladewater Ref. Co., Gladewater	3,000	2,000	2,000
Hurricane Pet. Corp., Overton	5,000	4,000	3,000
Hurricane Pet. Corp., Arp	3,300	(*)	(*)
Independent Ref. Co., Arp	5,000	3,000	2,000
Lynch Ref. Co. No. 1, Kilgore	3,000	2,300	2,300
Lynch Ref. Co. No. 2, Kilgore	4,000	3,100	1,600
Magnolia Pet. Co., Corsicana	5,000	3,500	3,500
McMurrey Ref. Co., Tyler	10,000	1,000	4,000
Model Oil & Ref. Co., Kilgore	2,000	(*)	2,000
Premier Oil Ref. of Texas, Greggtown	4,000	3,000	3,000
Talco Asphalt & Ref. Co., Mount Pleasant	8,000	7,500	6,000
Texas Co., Dallas	16,000	7,500	7,500
Tower Ref. Co., Overton	3,500	(*)	(*)
Total	92,300	41,900	40,400

*Shut down.

NORTH CENTRAL TEXAS

Baird Refining Co., Baird	1,500	950	950
Bryson Pipe Line & Refining Co., Bryson	2,000	1,000	1,000
Bryson Ref. Co., Inc., Bryson	1,500	(*)	(*)
Coleman Ref. Co., Coleman	800	650	800
Continental Oil Co., Wichita Falls	6,000	5,000	4,850
Cosden Pet. Corp., Graham	2,000	1,200	1,200
Falls Ref. Co., Wichita Falls	2,500	400	400
Gratex Ref. Co., Graham	500	300	300
Gulf Oil Corp., Fort Worth	8,000	6,500	6,500
Hightower Oil & Ref. Corp., Brownwood	750	(*)	(*)
Jacksboro Ref. Co., Jacksboro	400	100	100
La Salle Pet. Corp., Burkburnett	3,500	1,000	800
Magnolia Pet. Co., Fort Worth	7,500	5,750	5,750
Muenster Ref. Co., Muenster	1,800	800	800
North Texas Ref. Co., Gainesville	1,000	600	600
Ohio Oil Co., Fort Worth	5,000	3,750	3,750
Olney Oil & Ref. Co., North Olney	3,500	2,000	2,000
Panhandle Ref. Co., Wichita Falls	4,200	1,500	2,000
Panhandle Ref. Co., Lueders	1,500	850	875
Southland Ref. Co., Olney	500	200	200
Taylor Ref. Co., Taylor	1,000	600	600
Texas Pacific Coal & Oil Co., Caddo	800	450	450
Tucker Oil Co., Burkburnett	250	25	25
Tydal Ref. Co., Gainesville	2,000	(*)	(*)
W. T. Waggoner est., Vernon	5,000	3,000	3,000
Total	62,500	36,625	36,950

*Shut down.

SOUTHWEST TEXAS

Border Oil & Ref. Co., Sullivan City	1,000	500	500
Eggleston Oil Products Co., Three Rivers	1,000	750	750
Humble Oil & Ref. Co., San Antonio	5,000	3,750	3,500
Magnolia Pet. Co., Luling	8,000	5,000	4,500
Pettus Oil & Ref. Co., Pettus	1,000	850	850
Phoenix Ref. Co., San Antonio	2,000	1,000	1,000
Phoenix Ref. Co., Pettus	900	650	650
Pioneer Oil & Ref. Co., Somerset	2,000	750	750
Rado Ref. & Prod. Co., McAllen	800	500	500
Texas Co., San Antonio	5,000	4,000	3,750
Total	26,700	17,750	16,750

WEST TEXAS AND PANHANDLE

Aero Gas & Ref. Co., Fort Stockton	350	100	100
Coltex Ref. Co., Colorado	12,500	8,000	8,000
Cosden Oil Co., Big Spring	12,500	10,000	10,000
Danciger Refs., Inc., Pampa	6,500	5,000	5,000
Danube Oil Corp., Borger	800	400	400
Petrol Ref. Co., Lubbock	500	(*)	(*)
Gulf Oil Corp., Sweetwater	7,000	6,500	6,200
Howard County Ref. Co., Big Spring	2,000	600	600
Motor Fuels Corp., Levelland	4,000	3,200	3,000
Moutray Oil Co., Hawley	1,200	900	700
Onyx Ref. Corp., Hawley	2,000	1,800	400
Payward Ref. Co., Shamrock	1,000	500	420
Phillips Pet. Co., Borger	35,000	28,700	28,000
Post Refining Co., Rotan	800	350	350
Shamrock Oil & Gas Corp., Sunray	3,000	1,750	1,500
Shamrock Oil & Gas Corp., Lefors	1,600	850	850
Stamford Ref. Co., Stamford	450	300	300
Standard Oil Co. of Texas, El Paso	14,000	9,500	9,000
Star Light Ref. Co., Ballinger	1,000	500	500
Texas Co., El Paso	2,000	1,500	1,500
Texas Co., Amarillo	6,000	4,000	4,000
Western Ref. Co., Fort Stockton	1,000	800	800
Wickett Pet. Co., Wickett	3,500	800	800
Total	118,700	86,050	82,420

*Shut down.

Oklahoma Operations

By DAL DALRYMPLE

Open Two Hunton Lime Pools West of West Earlsboro Field

Two wildcats were showing as pool openers south and west of the West Earlsboro pool in Pottawatomie County, Oklahoma. J. W. Meazel was testing at No. 1 Billington, SE NE NE Section 26-9-4, as the outpost produced at the rate of 15 bbl. of oil an hour through tubing. Production was through perforations in Hunton lime at 4,186-4,208 ft. It was acidized with 1,000 gal. It was drilled to Wilcox sand at 4,473 ft., total depth 4,508 ft., with top of plug at 4,399 ft. The deep sand was salty.

The other Pottawatomie discovery is northeast of No. 1 Billington. It is Alma Oil Co.'s No. 1 Harrington, NW SE NW Section 29-4-9, which was shut in after flowing 75 bbl. of oil in 3 hours after acidizing. It also found Wilcox sand nonproductive at 4,500-10 ft., total depth, plugged back to 4,438 ft., perforated casing in Hunton lime at 4,180-4,230 ft., and acidized.

Thirteen additional tracts of state school lands in Bryan County, in the new Cumberland oil area, were leased the past week by the state School Land Commission. The tracts were in Townships 7s-8e, 7s-9e, 7s-10e, 7s-11e, 8s-8e, and 8s-10e. They were awarded to Sinclair-Prairie, Magnolia, Atlantic companies and George C. Pendleton. Eleven of 85 tracts offered previously had been leased.

Pure Oil Co.'s No. 1 Quintin Little A, C W½ NE SE Section 28-5s-7e, Cumberland discovery well in Marshall County, was completed for 4,542 bbl. of oil daily and shut in. The company has started work at four other wells in the area.

Johnson-Kemnitz Drilling Co. and McGraw Oil Co.'s No. 1 Neff-Godfrey, SW SE NE Section 14-6s-6e, Marshall County wildcat near Aylesworth and southwest of the Cumberland discovery, was due to be plugged back from 4,100 to 3,800 ft., in an effort to shut off water. It has been showing oil with water.

Sunray Oil Co. announced acquisition of half interest in 100 acres of leases in Noble County, adjacent to production in the Lucien field. The company's No. 1 Guthrie, on the tract, was bottomed at 5,431 ft. and operators were preparing for a production test.

Among the Wildcats

Pure Oil Co.'s No. 1 Quintin Little A, C W½ NE SE Section 28-5s-7e, the Marshall County wildcat that is responsible for the current revival of activity in several southern Oklahoma counties, has been completed for a daily rating of 4,542 bbl. of oil, with shut-in pressure on tubing of 1,100 lb. and on casing of 1,140 lb. Operators thoroughly tested production through various-sized chokes. In recent test it flowed 2,851 bbl. of oil through casing in 16½ hours. Gravity of the oil was 37.4°. Production was from Tulip Creek sands, topped at 4,952 and 5,088 ft. McLish zone was topped at 5,103 ft., sand 5,502 ft., total depth 5,640 ft., and was plugged back and completed in Tulip Creek zone. Gas gaged as high as 25,000,000 cu. ft. The operators have started work at four additional tests in the area, one being across the Washita River in Bryan County.

A discovery well was completed 5 miles east of Okemah in Okfuskee County at C. A. Yoakum and others' No. 1-A Replogle-Johnson, NW NW NE Section 11-11-10. Cromwell sand was found at 3,140 ft., lower Cromwell 3,167-77 ft., total depth, and it flowed 107 bbl. of 36-gravity oil through 25/64-in. choke, with no water, in 24 hours.

McKenzie's No. 1 fee, SW NE SE Section 36-7s-26e, wildcat location in McCurtain County, was reported abandoned.

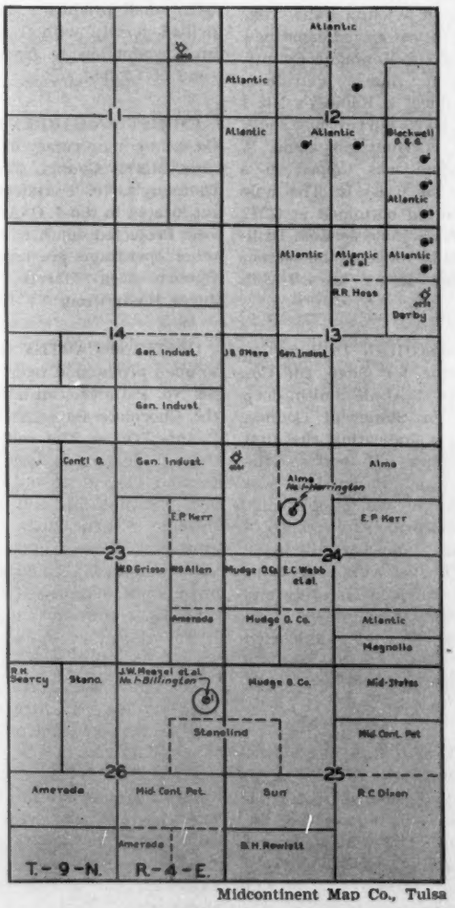
Cities Service Oil Co.'s No. 1 Sinnett, SE SE SW Section 14-20-4e, was location for a wildcat south of Glencoe, Payne County, on a seismograph structure. Thompson Brothers' No. 1 Truesdale, SE SE NW Section 31-8-5, Pottawatomie County wildcat, set 10-in. casing at 100 ft. and was waiting on cement. Noyes' No. 1 Harris, NE SE NW Section 22-10-7, Seminole County outpost, was drilling below 2,717 ft. Paul Helf's No. 1 Ball, NE NW SW Section 30-1n-17w, was location for a 2,500-ft. wildcat test in Tillman County. Gled Oil Co.'s No. 1 McCurdy, NE NE NE Section 18-6-17w, wildcat in Kiowa County, was drilling below 370 ft. Hamilton's No. 1 Myers, SW SW NE Section 22-9-2w, Cleveland County wildcat, was rigging up rotary. Gulf Oil Corp.'s No. 1 Owen, NE NE NE Section 27-4s-15w, Tillman County wildcat, was moving in material.

Pottawatomie County

Magnolia Petroleum Co. completed No. 7 Fyke G, NW NW NE Section 29-7-5, St. Louis district, Pottawatomie County, for swabbing potential of 400 bbl. of oil daily, after acid treatment. It had dolomite at 4,125 ft., total depth 4,210 ft.

Eason Oil Co.'s No. 1 Blackbird, NW NW SW Section 19-6-4, Asher area, had second Wilcox sand at 3,899 ft., total depth 3,910 ft., perforated casing and acidized, the hole filled with water and it was abandoned.

Wright's No. 1 Mann, C SE SE Section 19-6-5, Sacred Heart-Gray area, was dry and abandoned at 864 ft.



Midcontinent Map Co., Tulsa

J. W. Meazel's No. 1 Billington, Section 26, and Alma Oil Co.'s No. 1 Harrington, Section 24-9-4, wildcats in Pottawatomie County, found oil in Hunton lime. They are southwest of nearest producers in the West Earlsboro field, in Sections 12 and 13

Roy Starr and others' No. 1 Patrick, C NW NE Section 14-7-3e, was dry and abandoned at 4,446 ft., total depth.

Ray Dunnett's No. 2 Rogers, SE SE SW Section 31-11-4e, Shawnee area, was a recent completion at total depth of 4,472 ft., producing 575 bbl. of oil daily from Earlsboro sand.

Magnolia Petroleum Co.'s No. 4 Fyke D, NE NE NW Section 29-7-5, was building rig. Mid-Continent Petroleum Corp.'s No. 7 Rogers, SW NE SW Section 5-9-5, set 10-in. pipe at 79 ft. and was waiting on cement.

Estimated Daily Production

Estimated daily production for Oklahoma for the week ended May 11, and for the preceding week was as follows:

	Barrels	
	May 11	May 4
Allen	5,450	5,500
Billings	6,000	6,050
Burbank	6,875	7,000
South Burbank	8,600	8,600
Balance Osage	16,700	16,550
Blackwell district	3,675	3,675
Bristow-Slick	6,000	6,000
Chandler	1,100	1,150
Crescent	2,150	2,150
Cromwell	2,800	2,875
Cushing-Shamrock	9,200	9,200
Duncan	3,650	3,700
Edmond	4,325	4,325
Fish	3,375	3,400
Fitts	16,500	16,600
Jesse	2,250	2,250
Graham-Fox	2,000	2,000
Gray	800	775
Healdton	8,825	8,825
Hewitt	3,675	3,700
Keokuk	3,100	3,125
Konawa	1,150	1,150
Lucien	8,000	8,000
Moore	1,975	1,975
Northeastern counties	16,750	16,800
Oklahoma City	93,000	98,500
Olympic	2,150	2,150
Ramsey	3,800	3,800
Sasakwa	1,525	1,550
Sholem-Alechem	2,750	2,750
Seminole district:		
Bowlegs	6,900	6,900
Carr City	2,350	2,400
Dora	2,000	2,000
Earlsboro	4,200	4,250
South Earlsboro	550	550
East Earlsboro	2,150	2,150
Little River	6,625	6,600
East Little River	650	675
Maud	600	625
Mission	1,200	1,250
Seminole	7,300	7,325
East Seminole	1,100	1,125
Searight	2,100	2,100
Total Seminole	37,725	37,950
St. Louis-Pearson	28,750	28,750
Tatums-Tussy	2,750	2,075
Tonkawa-Garber-Thomas	4,050	4,100
Wewoka	1,700	1,750
Yale-Jennings	3,450	3,500
Other pools	83,350	80,725
Total Oklahoma	409,925	412,975

Pontotoc County

W. B. Pine's No. 3 Randall, SE NE NW Section 35-5-4, Bebee pool, Pontotoc County, found Viola lime at 2,330 ft., total depth 2,610 ft., was acidized and pumped 480 bbl. of oil daily.

Seminole County

Grimes' No. 2 Wooten, NW SE NE Section 3-5-5, South Konawa field, Seminole County, topped Hunton lime at 2,660 ft., total depth 2,848 ft., plugged back to 1,965 ft., shot, and was dry and abandoned.

Culver & Sheppard's No. 1 Wilmot, SE NW SW Section 3-5-5, recently was completed for 90 bbl. of oil daily at total depth of 2,822 ft.

Rudco Oil Co.'s No. 8 Tewee, SE NW NE Section 14-7-6, was building rig. Sinclair Prairie Oil Co.'s No. 3 Tewee, NW SW NE Section 14-7-6, was building rig.

(Continued on Page 326)

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Among the Drilling

BUNN Drilling Co., Tyler, Tex., is drilling below 5,025 ft. in a 6,800-ft. Trinity wildcat in Kaufman County, eastern Texas, for T. G. Shaw, of Fort Worth, Tex. The test has not yet encountered any saturation and was reported to be drilling in the Paluxy sand. It is located on the Angus Wynne lands, Newman Survey, about 8 miles east of the town of Kaufman.

G. T. HAMPTON, Coleman, Tex., has been given contract to drill Merry Brothers & Perini's No. 1 C. S. Walker, wildcat test about 10 miles northwest of Abilene and in West Central Texas. It is located in SE cor. Walker tract, G. Martinez Survey 137, approximately a mile north of the Akard field, northern Jones County.

W. B. OMOHUNDRO, contractor and operator of Wichita Falls, Tex., is preparing to test an indicated new discovery well in Montague County, North Texas, for Ramsey Petroleum Corp. The wildcat is Ramsey's No. 1 Magee, A. C. Davis Survey, just south of the town of Montague about ½ mile. Saturation was topped in a conglomerate at 6,263 ft. The hole was last reported bottomed at 6,272 ft., 1 foot into a shale section. Drill-stem test will be made of the section before drilling deeper toward contract depth.

C. T. McLAUGHLIN Drilling Co., Inc., contractor for Shell Oil Co., Inc., at its No. 1 Annie Smith, deep wildcat test in Stonewall County, West Texas, is indicating the first Mississippian lime oil field for the State of Texas. Saturation was topped in lime of Mississippian age at 6,015 ft. and drilled to a depth of 6,020 ft., where hole was still being made. Being drilled with cable tools, the hole was spudded last July and has encountered three shows of oil while drilling. The wildcat is located 2,310 ft. from the south line and 330 ft. from the west line of Section 143, Block 1, H.&T.C. Survey.

MARTIN THOMPSON has moved a rotary to the North Houston area, Harris County, Texas, where a wildcat operation is being started for W. M. Hobson. The well is located on the N. N. Allen lease, about 1½ miles east of production in the George Green Survey.

J. W. FRAZIER received contract from Dick Schwab for No. 1 Nona Fletcher Lumber Co., an outpost well east of production in the Spurger field, Tyler County, Texas. The well is located in the E. Thompson Survey, and will be drilled to the Wilcox formation.

OSAGE Drilling Co. is drilling the following wells in Yoakum and Gaines counties, Texas: No. 3 Walker, 4,000 ft.; drilling in on No. 3 Elliott; drilling below 4,085 ft. on No. 1 Nelson, and drilling in on No. 9-A Osage-Tippit. The first three wells are in Yoakum County, and the last well is in Gaines County.

ROWAN Drilling Co. is drilling below 7,900 ft. on the company's joint wildcat test with Nichols Oil Co., located southwest of Alvin in Brazoria County, Texas.

CROSBY Drilling Co. completed No. 1 Baiste at the Bayou Blue dome, Iberville Parish, coastal Louisiana, as a small producer. The well was drilled jointly with T. G. Markley, and production is from a shallow sand at 1,723-51 ft.

CHRISTIAN-CARPENTER Drilling Co. is moving a rotary to the Cypress area, Harris County, Texas, for the company's No. 1 Anderson, a wildcat located in the J. C. Anderson Survey. Projected depth is 7,400 ft. Two other operations are reported at the Ogburn area, Harris County, for Joyce Richardson.

GLENN McCARTHY is attempting to open production from 11,000 ft. in his No. 1 Andrau, an outpost well at the Chocolate Bayou field, Brazoria County, Texas. The well was tested through perforated liner at 11,406-09 ft., and flowed 158 bbl. of distillate and 146 bbl. of salt water daily through a ¼-in. choke. Another operation is reported in the same field, while in the same county and located on a wildcat prospect, the contractor's No. 1 Munson is drilling below 10,000 ft.

COWAN & SOREY, Corpus Christi, Tex., drilling contractors, will drill George R. Boyle and others' No. 1 E. B. Carruth and others, several miles southeast of the Barbacoas field in south central Starr County, Texas. The well will go 4,500 ft. and is located 4,257 ft. from the south and 4,435 ft. from the west lines of Share 1-B, Porcions 91 and 92, Camargo jurisdiction.

DALEY Drilling Co. of Tulsa is preparing to move in on No. 1 Ray Bryant, SW SW NW Section 33-2s-17w, Frederick pool, Tillman County,

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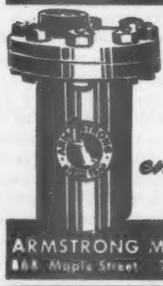

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Oklahoma, which has been farmed out by the Carter Oil Co. I. T. I. O. and Foster Petroleum, owners of two other offset leases to the Longacre, have requisitioned wells for the immediate future.

TARGET Drilling Co. of Wichita Falls, Tex., spudded in on its Kuykendall lease, 667 ft. from the north and 466 ft. from the east lines of south 80 of the G. W. Brock Survey, Abstract 1449, Jacksboro district, Texas, and is drilling at 1,900 ft. The well, No. 2, is an offset to No. 1 producer.

BURNHAM Drilling Co. of Shreveport, La., has contracted to drill Hassie Hunt's No. 1 Humphreys, a wildcat located 5½ miles west of the newly discovered Pickens field, Yazoo County, Mississippi. The test is located on a local high discovered geophysically, believed to have a closure of 95 ft. and to be connected with the Pickens field by a saddle in the intervening area. The rig is being moved on from an abandoned wildcat in Issequena County.

HELMERICH & PAYNE's No. 1-A Wilmut, G. N. Smith Survey, Archer County, Texas, Abstract 393, oil sand 4,275-4,312 ft., flowed 58 bbl. in 1 hour.

MANAHAN Drilling Co. has three rigs running in Illinois, drilling for Carter Oil Co. at St. Elmo, Mabee Consolidated Corp. at Salem, and Shell Oil Co., Inc., at Centralia. At Walnut Bend, near Gainesville in Cooke County, Texas, this organization is drilling a well for Sinclair Prairie Oil Co.

SUMMIT Drilling Co., Tulsa, has applied for 20-acre triangular spacing orders for 1,200 acres in the Kendrick pool, in Lincoln County, Oklahoma, which it opened recently with 688-bbl. Prue sand well in Section 6-15-5e. They estimate wells can be drilled in the area for an average of $20,000 each. Other petitioners for spacing are Amos L. Beaty & Co. and the Carter, Sinclair Prairie, Mid-Continent, Deep Rock and Brookhave Oil companies.

WILLIAM McFARLAND, Oklahoma driller, has contract to drill Carl Carter and J. E. Jackson's No. 1 Hinton, SE SE SE Section 1-7-17w, wildcat northwest of the Hobart pool in Kiowa County, Oklahoma. Rotary tools will be used to 2,800 ft. Location is on a Shell Oil Co., Inc., farmout.

JEROME FLORY, of Yates Center, Kans., has turnkey contract to resume drilling at Brin & Nathan's No. 1 Decker, C NW NW Section 1-61n-38w, wildcat in Holt County, Missouri. He previously has worked on day-rate basis. Casing was being run to 1,056 ft., preparatory to resuming drilling after long shutdown.

FERNDALE Drilling Co., of Odessa, Tex., was due to complete the second well to find oil in Nebraska at Pawnee Royalty Co.'s No. 1 Bucholz, C NW SW Section 17-1n-16e, near Falls City, Richardson County, in the Forest City basin. It was showing for 325 to 500 bbl. of oil from Hunton lime at 2,250 ft., total depth.

Drilling crew of J. C. Hawes & Son Drilling Co. Left to right: J. C. Hawes; Charles Easley, driller; Glenn Palmer, tool dresser; A. L. Perkins, tool dresser; Ray Young, tool dresser, and Henry Young, driller

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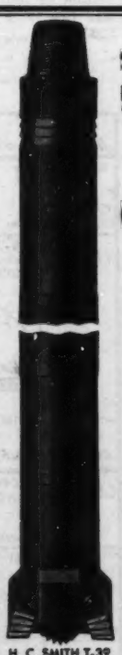

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North Louisiana, Arkansas

New Olla Field Appears to Be Already Limited in Area

By
GEORGE WEBER

SHREVEPORT, La., May 11.—The tristate area continued quiet during the past week with Olla the most active drilling field of interest, and wildcats in various sections approaching critical depths or beginning operations.

Olla Activity

Although several tests in the Olla field of La Salle Parish are in the Tertiary Wilcox productive zone, none was completed during the past week. Nine tests in the immediate vicinity of the discovery and on edge locations surrounding it, have cored the Olla zone of the lower Wilcox. Several have tested the numerous oil sands logged, but salt water tests with oil and various other difficulties have prevented completions thus far.

The Arkansas Fuel Oil Co.'s No. 1-A Goodpine tested gas at 2,378-80 ft., and after squeezing off and reperforating at 2,236-40 ft. in another oil zone, tested mud, cut with oil with a salty taste. The crew then squeezed off to retest.

Arkansas Fuel Oil Co. and Placid Oil Co. failed to get a test in perforating No. 2 Goodpine at 2,221-24 ft., and are testing further. In a southwest outpost, Atlantic Refining Co. cored salt water sand in the Olla zone, but was drilling ahead below 3,170 ft. A southeast outpost, Neeley's No. 1 Lisenby, is shut down at 2,380 ft. after failing to find oil shows in the Wilcox. Placid Oil Co. has five tests on the sand. No. 3 Goodpine, on the northwest edge of production, tested shows of oil, gas, and salt water at 2,352 ft., and after squeezing and reperforating at 2,248-51 ft. and 2,195-98 ft. squeezed cement in the formation and awaited further tests. No. 10 Louisiana Central, a northeast-edge operation, swabbed 7 to 8 bbl. of fluid hourly, 20 per cent salt water at 2,206-15 ft. and without squeezing off, perforated at 2,186-92 ft. and tested shows of oil and salt water, and is awaiting orders. The company's No. 12 Louisiana Central, a south-edge test, showed 150 bbl. of fluid daily, 50 per cent water, and squeezed off the perforations at 2,232-38 ft. to reperforate at 2,206-08 ft. Two other Placid Oil Co. tests have cored the sand but have not yet been tested. This work indicates that the Olla field will probably not develop any sizeable oil reserves.

Elsewhere in North Louisiana, only two wildcats were given close attention. In Claiborne Parish, Ohio Oil Co.'s No. 15 Taylor, deep Haynesville test, topped the Blossom sand at 2,774 ft. and was drilling below 3,117 ft. in lime and shale at latest reports.

In Caddo Parish J. M. Conner's (L. I. Davis) No. 1 Williams, Keithville wildcat, in Section 14-15-15, is drilling in lime and shale below 4,350 ft.

Arkansas Tests

In Miller County, Arkansas, Standard Oil Co. of Louisiana's No. 1 Sturgis, topped the Buckner at 8,948 ft. and the Smackover lime at 8,965 ft. While coming out of the hole to core, however, the drill stem was stuck at 2,647 ft. and the crew was cutting it out at week's end. The coring of the porous section in the top of the Smackover will be watched with interest in this wildcat, which several weeks ago encountered commercial oil production in the Paluxy formation, but was deepened to explore the lower Glen Rose and Smackover formations.

In Lafayette County Atlantic Refining Co. found oil showings in the No. 1 Bodcaw Lumber Co., a wildcat, in Section 29-17-23. The hole was cored at 7,308-16 ft. the recovery being 7 ft. 4 in., of which 2 ft. was porous, medium-fine sand with an oil stain and odor, and showing a good ether cut; 2 ft. 10 in. of core was fairly porous, medium-fine sand, with asphaltic streaks, and 2 ft. 6 in. was the same type of sand with a salty taste. Operators are drilling ahead below 7,700 ft. through the Cotton Valley horizon, approaching the Smackover section.

East Texas

Two wildcats in the eastern border counties of Texas, which have attracted attention during the past few weeks, were abandoned as dry in the Paluxy. In Cass County E. A. Stiller stopped No. 1 Glass at 4,000 ft. and in Harrison County near Hallsville, Fohs Oil Co. completed No. 1 Sypert, dry at 4,559 ft., with the Paluxy at 4,344-61 ft. No showings of oil were found.

Production by Pool

Estimated daily gross production all companies week ended May 10, 1940:

NORTH LOUISIANA

	Barrels
Bellevue	460
Caddo light	5,090
Caddo heavy	2,120
Converse	550
Cotton Valley	*14,790
Cross Lake	5,115
De Soto and Red River	980
Elm Grove	270
Haynesville	2,705
Holly	60
Homer	2,885
Lisbon	5,150
Olla	755
Pleasant Hill	85
Rodessa	20,810
Sarepta-Carterville	†360
Sligo	2,185
Sugar Creek	675
Urania	2,810
Zwolle	1,890
Total	70,735

SOUTH ARKANSAS

Atlanta	1,600
Big Creek	65
Buckner	1,965
Champagnolle	1,160
Dorcheat	1,130
El Dorado	1,690
Lewisville	725
Lisbon	245
Magnolia	19,950
Miller County	280
Nevada	555
Nick Springs	125
Rodessa	2,305
Schuler	18,675
Smackover light	1,780
Smackover heavy	13,985
Stephens	525
Troy	1,260
Urbana	925
Village	1,200
Total	70,145

*4,240 bbl. is distillate.
†90 bbl. is distillate.
Rodessa, Texas, 18,425 bbl.

NORTH LOUISIANA COMPLETIONS

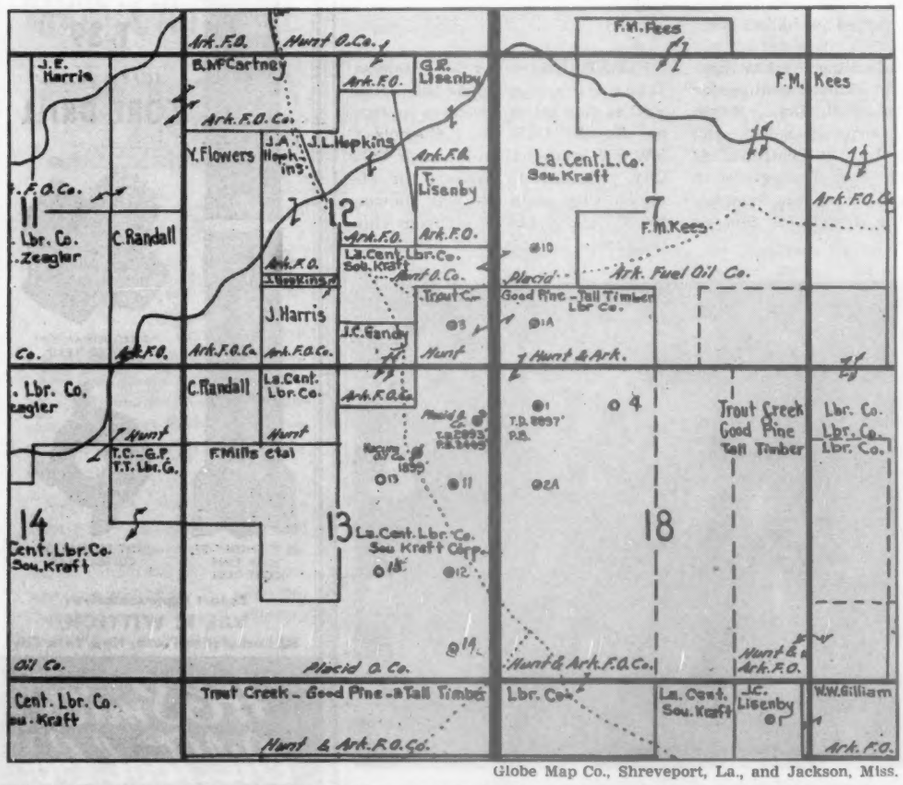
Sligo—Bossier Parish

Triangle Drilling Co.'s No. 5-C Skannal, 332 ft. south and 1,668 ft. west of NE cor., Section 13-17-12, 214 bbl., 12/64-in. choke, total depth 3,013 ft.

Caddo—Caddo Parish

C. J. Brown's No. 2 Muslow, Section 5-20-15, 200 bbl., open tubing, total depth 1,563 ft. Cooper Oil

(Continued on Page 310)



Globe Map Co., Shreveport, La., and Jackson, Miss.

Olla district, recently discovered Wilcox field in La Salle Parish, is gaining in activity with 12 rigs active in offset, edge or outpost locations. Several oil sands are logged in the lower Wilcox formation in active tests, but difficulty is met in completing wells without salt water intrusion

North and East Texas

By
D. H. STORMONT

Montague County Tests Fail To Find Discovery Pay Zone

WICHITA FALLS, Tex., May 13.—Despite the fact that several of Montague County's most important wildcats have failed to find production in the projected pay zone, no letup is in sight for the widespread wildcatting program. New locations, new wildcat drilling blocks and the reports of lease deals throughout the county continue.

One of the most closely watched wildcats in Montague County recorded some discouraging results during the week. It is Ramsey Petroleum Co.'s No. 1 Magee, A. C. Davis Survey, on the outskirts of the town of Montague. The wildcat topped its first saturated zone in a conglomerate at 6,263 ft. and drilled to 6,276 ft. The zone was given a 25-minute drill-stem test and made only salt water, with no oil. The well is being drilled deeper.

The closely watched Bonita area just west of the town of Bonita in Montague County has two tests which reached critical stages during the week. Sinclair Prairie Oil Co.'s No. 1 Doty, J. N. Jones Survey, west offset to the company's discovery well, drilled lime with shows of oil from 5,972 to 6,025 ft. and was shut down to run casing. The test missed the regular pay zone of the discovery well and has found its pay in the Ellenburger lime. The lime was topped at 5,820 ft., the depth at which casing is being cemented.

Sinclair Prairie Oil Co.'s No. 2 Howard, W. Wallace Survey, south offset to the discovery well in the Bonita area, was last reported coring and testing below 5,852 ft. in dolomitic lime. Drill-stem test was run in at 5,814-32 ft. and with tool open for 1 hour, only mud, cut slightly with oil, was recovered. A core from 5,832 to 5,852 ft. showed a recovery of 19 ft. of dolomitic lime. This test topped the Ellenburger lime at 5,832 ft. Casing is expected to be run to the top of the lime, and the various zones tested through perforations.

Ringgold Area

In the area around the small town of Ringgold in extreme western Montague County several of the recently started outposts to W. B. Omohundro's discovery neared the critical stage.

Sinclair Prairie Oil Co., one of the leaders in Montague County's wildcat exploratory program, spudded another deep wildcat. It will be the company's No. 1 T. H. Milam, a 5,600-ft. rotary test, 330 ft. from the south and east lines of the T. H. Milam tract, Block 54, Abel Beason Survey, Abstract 20. The location falls about 2¼ miles north and slightly east of the Omohundro strike just south of Ringgold.

A half mile north of the Omohundro strike British American Oil Producing Co.'s No. 1 Martin, Section 27, Block 4, H.&T.C. Survey, a tight well, was reported drilling below 4,900 ft.

Six miles south of the Omohundro strike Sinclair Prairie Oil Co.'s No. 1 Threadgill, Block 10, Jack County School Lands, a 6,000-ft. wildcat, is drilling below 3,485 ft.

A new wildcat block has been assembled in western Montague County with reports that a drilling obligation is attached. J. C. Hawkins of Tyler, Tex., has taken 6,000 acres about 6 miles northwest of Bowie for a reported consideration of $18,000. The acreage includes all or the majority of Sections 2808, 2,809, 2810, 2823, 3428, and 3429. No location has yet been announced.

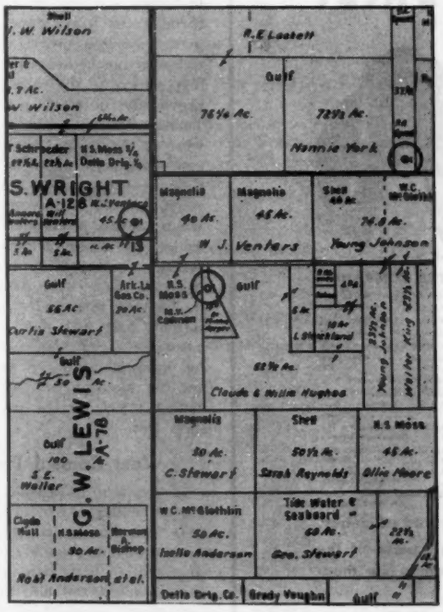
Rogers & Rogers Area

Sinclair Prairie Oil Co. has obtained permit for its No. 1 Lena Benton, a scheduled 6,000-ft. Ellenburger lime test 1 mile east of Nocona, and about 1¼ miles east of production in the Rogers & Rogers field. Location is 330 ft. from the north and west lines of a 121-acre tract in the Thomas R. Jackson Survey.

In the west-extension area of the Rogers & Rogers field Anderson-Prichard Oil Corp. has staked No. 1 T. M. Baker, slightly south and west of W. T. Payne's No. 1 Baker, extension producer, completed several weeks ago. The location is 466 ft. from the north and east lines of SW Block 42, W. J. Wells Survey.

Clay County

A new wildcat is scheduled to start soon in eastern



Zingery Oil Map Co., Fort Worth

The area surrounding the H. S. Moss' No. 1 Venters, wildcat test in Camp County, received added activity as three new locations were made. All are contracted to the deep 8,000-ft. Trinity zone which was reported to have carried saturation in the No. 1 Venters. Plug has been set in the Venters test for the past 2 months, title trouble reported as the cause for it not being drilled out

Clay County. Glenn Grimes of Oklahoma City and Bob Lipscomb of San Antonio are preparing to have rig moved to No. 1 Hapgood, C SW Block 61, Marion County School Lands Survey. The contract depth is 6,000 ft. and the location is approximately 5½ miles west of the Omohundro strike in extreme western Montague County. It is located on a block of 2,500 acres which has been surveyed with seismograph.

Shows of oil were found at a wildcat 5 miles southeast of the Halsell field in Clay County. It is W. B. Omohundro's No. 1 Percifield, Block 36, T. J. Belcher subdivision. The wildcat cored 11 ft. of rich sand at 5,260 to 5,271 ft., but an analysis showed the sand was too hard and tight to merit testing. The wildcat has been shut down for repairs, after which it will be deepened.

Antelope Area

The northwest part of Jack County has been given a new deep wildcat test. It is R. A. Conklin's No. 1 Hoefel, 450 ft. from the west and 1,400 ft. from the south lines of the A. James Survey. It is 4 miles south of Antelope and south of the wildcat discovery brought in several months ago by Shell Oil Co., Inc., on the Henderson tract in southern Clay County.

EASTERN TEXAS

DALLAS, Tex., May 13.—The staking of three wildcats in the vicinity of H. S. Moss' deep wildcat in Camp County held the attention in eastern Texas during the week. One of the wildcats is almost a direct southeast offset to the H. S. Moss No. 1 Venters, which has been shut down with plug undrilled for the past 2 months.

Early in the week M. V. Cadman of Tyler, Tex., staked location for No. 1 Minnie Harper, on a 10-acre tract in the northwestern corner of the Robert Wyres Survey, Abstract 125. The location falls about one-eighth of a mile southeast of the Moss test.

Later in the week two more deep wildcats were reported for the area. Roy B. Lockett, one of the larger acreage holders in the area surrounding the Moss test, staked his No. 1 W. W. Chance. It is on a 33-acre tract in the Robert Wyres Survey and about 2½ miles east and slightly south of the Moss test. The third location for the area was made by P. A. Spratt, who staked his No. 1 Spratt, 37-acre tract in the southwestern corner of the J. B. McMahon Survey. This wildcat falls about a mile east and slightly north of the Moss test.

H. S. Moss, who took over the test from W. C. McGlothlin early this year for deepening to the lower Trinity zones, has given no indications of drilling the plug at No. 1 Venters, the "mystery" wildcat of eastern Texas. About 2 months ago a zone of saturation in the Trinity was reported drilled and casing was cemented for a test. Title trouble is blamed for the delay in drilling the plug. No. 1 Venters is bottomed at a total depth of 8,087 ft.

It has not been determined whether the three new locations will be started immediately or even in the near future.

Rusk County

Hamilton & Whittington's No. 1 Kangerga Brothers, Castro Survey, Rusk County, in the extreme northern part of the county and about 5 miles south of the Willow Springs deep gas field, was spudded to 300 ft. several weeks ago and was then shut down. Drilling was resumed early the past week and it was last reported below 3,000 ft.

Field Activity

General field work in the East Texas district showed an increase in some areas and a decrease in others. The East Texas field led all development with a total of 12 new locations and 7 completions. Only three completions were recorded for the East Central Texas fields, one a large gas well in Leon County, one an abandonment in Henderson County and one a junked hole in Titus County. No new locations were recorded for the East Central Texas district.

EAST TEXAS FIELD COMPLETIONS

(1-hour gages)

Gregg County—Kilgore Area

Bess Johnson's No. 3 M. E. Hale, 3,548-75 ft., 41 bbl. J. E. Kemp's No. 11 A. A. King, 3,522-45 ft., 30 bbl. Mabee Oil & Gas Co.'s No. 25 M. T. Cole, 3,518-20 ft., 55 bbl.

Rusk County—Kilgore Area

Jackson-Wise & Markham's No. 6 C. O. Christian, abandoned location.

Upshur County—Longview Area

Coastal Development Co.'s No. 27 J. J. Flewellen, 3,649-58 ft., 50 bbl. B. F. Phillips' No. 2 W. L.

(Continued on Page 326)

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Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ont., May 11.—In North Turner Valley, Anglo-Phillips' No. 1, LSD 14, Section 15-20-3w5, bottoming in the Madison limestone at 8,758 ft., has encouraging crude showings in the upper porous zone. With the upper zone only partly drilled, drill-stem tests gave as high as 78 bbl. in 2 hours, or around 1,000 bbl. a day natural flow. Tests were primarily to determine whether, this far down the flank of the structure, water was present. No water was indicated, and drilling will be continued through the upper zone. If production in this horizon proves satisfactory, the well may not be deepened into the lower lime, owing to the water hazard in this previously untested portion of North Turner Valley. Location is south and west of the main North Turner Valley producing area, about 2 miles south of Home Oil Co.'s No. 2 Millarville, and about 8 miles northwest of the nearest West Central producers. The test was drilled by Anglo-Canadian Oil Co. on acreage of Jack Phillips and associates. It is the first test in Section 15, is surrounded on three sides by undrilled locations, and will open for drilling a large new area with possible locations for approximately 50 wells. The well got the Madison at 8,580 ft. and was drilled 178 ft. in before making drill-stem test.

West Central Producers

In Section 13-19-3w5, West Central Turner Valley, Arrow Royalties' No. 1, LSD 16, bottoming at 8,102 ft., some 482 ft. in the Madison, was given major acid treatment in both zones and on 10-hour test produced 208 bbl. an hour, a record flush production for the field. Earlier tests before complete acidization showed 1,516 bbl. a day. Location is immediately west of an area where small producers had been drilled in a tight-lime formation and some 6 miles south and east of the Model wells in North Turner Valley. The completion opens anothher area for development west and north of the older West Central producers.

In Section 6-19-2w5, East Crest Oil Co.'s No. 5, LSD 9, finished 446 ft. in the lime at 7,762 ft., is completing tests for official allowable, making around 650 bbl. a day. It has been operating on 250 bbl. a day temporary allowable.

In Section 18-19-2w5, Calmont-Northwest's No. 1, LSD 3, finished at 7,609 ft., 437 ft. in the Madison, and is testing production with early indications of a good well.

In Section 7-19-2w5, Royalite Oil Co.'s No. 48, LSD 10, finished 10 ft. in the dark lime at 7,533 ft., after getting the Madison at 7,087 ft., and is testing production.

Tests in the Lime

In Section 18-19-2w5, Davies Petroleums' No. 5, LSD 10, is below 7,242 ft., after getting the Madison at 6,942 ft., with cores indicating good porosity. Location is about a mile east and slightly south of Arrow's No. 1 producer.

In Section 6-19-2w5, Kamalta Oils' No. 1, LSD 1, got the Madison lime at 7,689 ft. and is deepening below 7,779 ft. Drilling will be continued to the hard middle section of the lime before cementing production string.

In Section 32-18-2w5, Royal Canadian Oil Co.'s No. 4, LSD 12, is below 7,674 ft. after getting the Madison at 7,645 ft. and cementing at 7,664 ft.

In Section 20-18-2w5, York Oils' No. 3, LSD 3, is below 7,682 ft. after getting the Madison at 7,568 ft.

In Section 17-18-2w5, Royalite Oil Co.'s No. 50, LSD 7, is below 7,576 ft. after getting the lime at 7,339 ft.

In Section 8-18-2w5, Northwest-Hudson's Bay's No. 3, LSD 15, is finishing below 8,105 ft., after getting the Madison at 7,685 ft.

Southwest Operations

In Section 8-18-2w5, Southwest Turner Valley, Northwest-Hudson's Bay's No. 4, LSD 14, is working on derrick.

West Central Field

In Section 5-19-2w5, West Central Turner Valley, Royalite Oil Co.'s No. 52, LSD 12, is preparing to start work. Royalite's No. 51, LSD 13, is below 5,499 ft.

In Section 8-19-2w5, South West Petroleum Co.'s No. 4, LSD 4, is working on derrick. Location is immediately west of No. 3 producer.

North Turner Valley

In Section 27-20-3w5, North Turner Valley, Foothills Oil & Gas Co.'s No. 6, LSD 5, is below 7,064 ft. and getting close to the Kootenay formation.

In Section 28-20-3w5, Home Oil Co.'s No. 5, LSD 16, is working on cellar. In Section 33-20-3w5, Home Oil Co.'s No. 1, LSD 8, is working on derrick.

In Section 34-20-3w5, Alberta Oil Incomes' No. 1, LSD 4, is sidetracking in the Blairmore formation at 6,011 ft. In Section 4-21-3w5, Incomes' No. 2, LSD 4, is fishing at 5,630 ft.

Choke Flow Tests

The Alberta Gas Conservation Board will this month make its regular production tests through 1-in. choke of all crude wells in Turner Valley. Such tests are made every 4 months. The last check up showed an aggregate of 79,482 bbl. a day, later increased by new wells to around 90,000 bbl. for a total of 100 wells. The present tests will include 105 wells.

Storage in the Turner Valley field at the end of April approximated 600,000 bbl., an increase of around 26,000 bbl. for the month, due largely to the backward spring. With improved weather in May, a decrease in stored oil is anticipated.

Steveville Test

In the Steveville field, eastern Alberta, Standard of British Columbia's No. 1 Princess, LSD 13, Section 22-20-12w4, is below 6,009 ft. and will be carried farther into the Devonian lime before mak-

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ing a production test. Originally it was intended to test at 6,000 ft. A gas flow of 65,000,000 cu. ft. a day, encountered in the Devonian at 5,254 ft. and shut off to permit deepening, will likely be tested for naphtha recovery.

Tests in the Foothills

In the Pouce Coupe area in the northern Alberta foothills, west of Peace River, Benedum & Trees' No. 1, Section 7-80-12w6, standing since last fall at 5,459 ft., has been turned back to the Guardian Oil Co. which is arranging for further production tests. The upper 200 ft. of porous lime between 4,800 and 5,000 ft. will be acidized.

On the Brazeau structure, west of Edmonton, Home Oil Co.'s No. 1, LSD 16, Section 7-43-17w5, is in the basal Kootenay formation below 8,180 ft., after passing through the Dalhousie sands at 7,880 ft. Test is expected to get the Madison inside 170 ft. with the producing horizon around 8,700 ft.

On the Mill Creek structure in the southern foothills, Alliance Royalties' No. 2, LSD 14, Section 11-6-2w5, is below 572 ft., with the Madison expected around 4,500 ft.

Saskatchewan Drilling

In the Lloydminster field, western Saskatchewan, Franco-Triangle's No. 3, LSD 13, Section 14-49-28w3, finished as a crude producer at 1,738 ft., has been cleaned out and is running gravel pack. Alberta Southern Oils' No. 1 has been located in LSD 5, Section 14-49-28w3, and will spud this month.

In the Alberta end of the field, Lloydminster Royalties' No. 1, LSD 4, Section 36-49-1w4, has erected new derrick and is running tools. The hole will be reconditioned and a new method tried to develop steady pumping production. Shaw Petroleums' No. 2, LSD 10, Section 25-49-1w4, has been bailing some crude, and will be cleaned out and gravel pack installed for several feet to prevent sanding of the pump.

On the Saskatchewan side Shaw Petroleums' No. 3, LSD 5, Section 23-49-28w3, is deepening a few feet in the sand from 1,710 ft. to increase production.

California Oil-Field Operations for February 1940

According to figures collected by the American Petroleum Institute, the total production of crude oil in California for February amounted to 17,642,640 bbl., an average of 608,367 bbl. per day. This is a decrease of 3,259 bbl. per day under January production.

Total stocks of crude and all products in Pacific Coast territory increased during the month 1,644,747 bbl. The total stocks at the end of the month were 153,209,289 bbl. The total stock increase for 1940, up to February 29, was 1,274,041 bbl.

Fifty-five wells were completed during the month with an initial daily production of 57,017 bbl., compared with 82 wells completed during January, with an initial production of 64,662 bbl.

CRUDE-PETROLEUM PRODUCTION

(Figures of production and stocks are in barrels of 42 gal.)

	Total production	Daily average		
Group No. 1:	February	Feb. 1940	Jan. 1940	Feb. 1939
Arvin	67,419	2,325	2,561	97
Belridge—North	329,845	11,374	11,287	12,257
Belridge—South	56,816	1,959	1,831	1,171
Canal	166,430	5,739	5,840	4,081
Canfield Ranch	1,554	53	60	24
Coalinga	625,527	21,570	21,807	9,767
Cole's Levee	88,241	3,043	2,368	180
Edison	61,083	2,106	2,205	2,439
Elk Hills	357,548	12,329	10,544	10,175
Fruitvale	168,065	5,795	6,050	7,305
Greeley	91,957	3,171	3,245	2,090
Kern River	323,561	11,157	11,650	10,938
Kettleman Middle Dome				40
Kettleman North Dome	1,477,167	50,937	48,239	57,830
Lost Hills	120,518	4,156	4,167	3,323
McKittrick	100,326	3,460	3,498	3,762
Midway-Sunset	1,509,260	52,043	52,306	55,978
Mountain View	207,424	7,153	7,466	9,243
Mount Poso	279,365	9,633	9,743	13,775
Paloma	5,323	184	181	
Rio Bravo	241,329	8,322	7,741	7,720
Round Mountain	220,248	7,595	7,739	12,485
Strand	33,115	1,142	1,311	
Ten Section	244,089	8,417	8,480	8,955
Tupman	30,819	1,063	972	275
Wasco	42,030	1,449	1,115	696
Wheeler Ridge	9,205	317	315	399
Group No. 2:				
Capitan	56,680	1,954	2,021	2,721
Elwood	110,791	3,820	3,918	4,718
Rincon	109,753	3,785	4,123	3,667
San Miguelito	85,689	2,955	2,927	2,285
Santa Barbara	5,407	187	263	381
Santa Maria	102,768	3,544	3,413	4,287
Santa Maria Valley	339,690	11,713	10,763	10,622
Summerland	668	23	29	34
Ventura Avenue	1,077,185	37,144	37,034	34,273
Ventura-Newhall	203,819	7,028	7,100	5,575
Watsonville	725	25	25	30
Group No. 3:				
Brea-Olinda	163,894	5,652	5,614	5,612
Coyote—East	93,429	3,222	3,041	2,580
Coyote—West	176,408	6,083	7,030	7,985
Dominguez	569,458	19,636	19,627	21,259
El Segundo	74,697	2,575	2,699	3,757
Huntington Beach	799,904	27,583	27,414	27,845
Inglewood	359,485	12,396	12,945	12,692
Lawndale	1,272	44	43	71
Long Beach	1,305,148	45,005	46,056	49,714
Los Angeles-Salt Lake	14,865	513	542	552
Montebello	688,782	23,751	26,779	13,792
Playa Del Rey	122,922	4,239	4,377	5,360
Potrero	56,161	1,937	1,587	1,064
Richfield	253,741	8,750	8,765	8,155
Rosecrans	290,885	10,031	9,477	15,855
Santa Fe Springs	749,366	25,840	25,927	28,812
Seal Beach	219,423	7,566	7,258	7,638
Torrance	357,148	12,315	13,294	21,259
Whittier	29,181	1,006	970	986
Wilmington	2,365,032	81,553	83,844	83,519
Total February	17,642,640	608,367	611,626	622,105
Total January	18,960,399	611,626	.....	.....
Decrease	1,317,759	3,259	.....	.....

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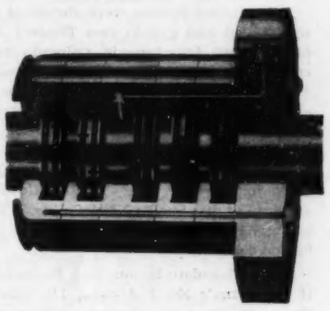

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Texas and Louisiana Gulf

By
NEIL WILLIAMS

Wildcats Showing Favorably In Numerous Coastal Districts

HOUSTON, Tex., May 13.—A scheduled production test of Standard Oil Co. of Texas' No. 61-54 State, offshore from Chambers County, in Galvestion Bay, was holding the attention of operators in the Gulf Coast district. The well is bottomed at 9,538 ft., and 7-in. casing was cemented at 9,129 ft. after an electrical survey and sidewall cores showed favorable indications. Sand showing from 1.6 per cent to 8.3 per cent saturation was recovered in sidewall cores at intervals from 9,006 to 9,022 ft., while cores at 8,472 ft.; 8,477 ft.; 8,558 ft.; and 8,570 ft., recovered sand with a good oil odor. The structure is about 12 miles southwest of Anahuac and northeast of the Cedar Point field, and was found by reflection seismograph shooting several months ago.

Unconfirmed rumors were abroad of favorable showings of oil and gas in two Tertiary Wilcox wildcats of Shell Oil Co., Inc., in Colorado and San Jacinto counties. In the Sheridan area, Colorado County's No. 1 Plow Realty Co. was reported to have cored favorable showings in the Wilcox, but details as to where the showings were logged were not available. The last drilling depth reported was below 8,200 ft., and no drilling information has been released by the company for several days. In the Goodrich area, San Jacinto County, Shell's No. 1 Coline, is drilling in shale below 7,260 ft., with no shows of oil or gas reported by the company.

In the Chocolate Bayou field, Brazoria County, Glenn H. McCarthy's No. 1 Andrau, 1½ miles northwest of the discovery well, showed promise of opening the deepest production in Texas, when the well flowed 158 bbl. of distillate, and 146 bbl. of salt water per day through a ¼-in. choke. Tubing pressure was 3,380 lb. Gravity of the oil tested 49 degrees. The well was tested for several hours, and is reported to have shown an increase in salt water. It has been killed preparatory to retesting. The same operators' No. 2 Houston Farm Development Co., about 3,000 ft. northwest of the discovery well, flowed salt water when tested through perforated casing at 10,124-31 ft. The testing tool was pulled and the perforations squeezed off with cement.

In the Anchor field, Brazoria County, Glenn McCarthy's No. 1 Yocum was completed through perforated casing at 10,398-10,401 ft., and the well flowed 162 bbl. of distillate daily through a ¼-in. choke. Tubing pressure was 2,300 lb. The well is in the J. D. J. Valderas Survey, northeast of the discovery well.

The West Ranch field, Jackson County, was extended approximately 2,000 ft. west with the completion of Renwar Oil Corp.'s No. 1 Phillips, which is flowing at the rate of 4 bbl. of fluid per hour while cleaning out through a 3/32-in. choke from perforated casing at 5,750-62 ft. This is the first well on the west side of the field to be completed in the 5,700-ft. pay which extends production from this sand about 2 miles. The well was drilled on a farmout lease from Shell Oil Co., Inc., and the completion extends production outside of Magnolia Petroleum Co.'s large West Ranch block which will result in an increase in drilling operations.

In the same county and in the Lolita area, Wellington Oil Co.'s No. 1 Ward estate was attracting much attention following an 8-minute drill-stem test at 5,825-44 ft., which tested 325 lb. working pressure and recovered 50 ft. of gas and distillate-cut drilling mud, of which 5 to 8 per cent was amber-colored distillate. The well is coring ahead.

W. L. Goldston is rigging up for a second wildcat test in the Needville area, Fort Bend County. The well is situated on the Willie Kulcak lease in the Carl Radke Survey, Section 48, about 2½ miles southwest of Goldston's No. 1 Hackstedt, a recent dry hole. South of Needville, Tide Water Associated Oil Co.'s No. 1 Armstrong is drilling in shale below 7,802 ft. A showing of gas was logged at 7,800 ft. Top of the Textularia Warreni was reported at 7,340 ft.

In Matagorda County, Texas Co. is rigging up No. 1 A. B. Pierce, in the Blessing area. The well is 800 ft. from the south line and 1,600 ft. from the west line, Block 65, H.&G.N. Survey. In the Wadsworth area, Deep Rock Oil Corp.'s No. 1 Petrucha, is drilling in shale below 10,470 ft. Top of the Marginulina Texana was reported at 8,965 ft., and the Nodosaria at 10,302 ft.

Stanolind Oil & Gas Co.'s No. 1 Garrow, a southeast outpost in the Martha field, Liberty County, was making a series of production tests which may open a new producing horizon for the field. The well is bottomed at 9,825 ft., and 5½-in. casing was cemented at 9,208 ft. An electrical survey showed broken sand and shale sections with probable oil and gas shows at 8,515-18 ft.; 8,593-8,610 ft., and 9,142-65 ft. At the end of the week, the well was being tested through perforated casing at 9,142-52 ft.

In the Ogburn area, Harris County, Joyce Richardson's No. 1 A. Marks, J. Beard Survey, was drilling in sand with an oil odor at 6,770 ft., after a 30-minute drill-stem test at 6,740-70 ft. recovered 180 ft. of mud and 1,900 ft. of salt water.

Louisiana Coast

Along the Louisiana Coast, in the West Lake Verret field, St. Mary Parish, Shell Oil Co., Inc., was testing a new sand in No. 4 Jeanerette. Following a series of production tests below 10,000 ft., that showed various amounts of distillate, salt water and drilling mud, the hole was plugged back to 8,858 ft., and the well is testing through perforated casing at 8,840-55 ft. During a 24-hour gage, it flowed 288 bbl. of oil and 192 bbl. of salt water through a 17/64-in. choke. Tubing pressure was 1,050 lb. and casing pressure 620 lb.

In the Bancroft field, Beauregard Parish, Republic Production Co.'s No. 11 Lutcher Moore Lumber Co. is reported to be flowing pipe-line oil which gives a northeast extension to the field. This well was drilled to 7,525 ft., and casing cemented on bottom, following a drill-stem test in the Conroe sand which is reported to have recovered pipe-line oil. Details of the completion are not available, but the well is reported to be producing from the Conroe sand, and is the second well in the field to produce from that sand which is found approximately 200 ft. deeper than the uppper Cockfield sand at 7,300 ft.

On the east flank of the Starks field, Calcasieu Parish, W. T. Burton and others are testing two wells which may open new producing horizons for the field. The company's No. 2 Industrial Lumber Co., Section 29-9s-12w, topped sand at 5,833 ft., and casing was cemented for a production test after a drill-stem test at 5,833-49 ft., total depth, recovered 180 ft. of pipe-line oil. The operators' No. 1 Lutcher Moore Lumber Co., Section 30, is bottomed at 4,810 ft., and 5½-in. casing was cemented at 3,990 ft.

On the Bayou Blue dome, Iberville Parish, T. G. Markley and others' No. 1 Baiste is reported to have been completed for a producer, although no gas was available. Sand was cored in this well the previous week at 1,723-51 ft., and the completion was made with 7-in. casing cemented at 1,723 ft. Superior Oil Co.'s No. 1 E. B. Schwing is drilling in shale below 8,200 ft.

On the Fausse Point dome, Iberia Parish, Sun Oil Co.'s No. 1 Cling & Walet, Section 26-11s-8e, cored sand with a show of oil at 780-95 ft., and broken lime showing oil at 1,105-50 ft., and 5-in. casing was cemented at 1,151 ft., preparatory to testing at 1,105-50 ft. This is the first test drilled on the dome in several months.

Production from a shallow sand was opened at the Lafitte field, Jefferson Parish, with the completion of Texas Co.'s No. 15 Lafitte in Section 20-17s-24e. The well was drilled to a total depth of 10,135 ft., where a series of tests in the regular pay recovered salt salt water. The hole was plugged back, and the well completed through perforated casing at 4,805-10 ft. On a 24-hour gage the well flowed 212 bbl. of oil per day through a ⅛-in. choke.

In the Plumb Bob field, St. Martin Parish, Texas Co.'s No. 13 St. Martin, Section 21-8s-7e, perforated casing at 8,345-58 ft., and on a 40-minute drill-stem test, recovered salt water. The perforations have been squeezed off, preparatory to retesting.

Texas Co.'s No. 2 State, the second well to be drilled in the newly opened West Cote Blanche field, St. Mary Parish, topped sand showing oil at 3,060 ft., and the well is coring ahead in sandy shale showing oil at 3,066 ft.

In Plaquemines Parish, California Co.'s No. 1 Delta Minerals, the discovery well of the Lake Salvador field, has been killed due to salt-water encroachment. The well was completed several weeks ago through perforated casing at 9,963-74 ft., and during a recent gage it flowed 320 bbl. of fluid per day through a ¼-in. choke of which 35 per cent was salt water.

TEXAS GULF COAST COMPLETIONS IN PROVEN FIELDS

Brazoria County

Danbury field: Rowan Drilling Co.'s No. 12 Jamison, sand 2,101-14 ft., 73 bbl., ¼-in. choke. Manvel field: Texas Co.'s No. 29-B Belcher, sand 5,110-35 ft., 480 bbl., ¼-in. choke. Old Ocean field: Harrison & Abercrombie's No. 8 Armstrong, 11,046 ft., 343 bbl., various chokes. West Columbia field: Texas Co.'s No. 37 Abrams, sand 5,476-5,510 ft., 329 bbl., ¼-in. choke.

Chambers County

Anahuac field: Humble Oil & Refining Co.'s No. 27 Tyrell, 7,080 ft., 687 bbl., ¼-in. choke. South Cotton Lake field: Salt Dome Oil Corp.'s No. 3 Williams, 6,496 ft., 254 bbl., ¼-in. choke.

Fort Bend County

Thompson field: Humble Oil & Refining Co.'s No. 32 Davis, sand 5,397-5,410 ft., 531 bbl., ¼-in. choke. Humble Oil & Refining Co.'s No. 4-A Wolters, sand 5,395-5,410 ft., 478 bbl., ¼-in. choke. Quintana Petroleum Corp.'s No. 11 Wolters, perforated casing 5,376-84 ft., 486 bbl., ¼-in. choke.

Galveston County

Hastings field: Humble Oil & Refining Co.'s No. 13 Hadden, sand 6,063-76 ft., 338 bbl., ¼-in. choke.

Harris County

Clear Lake field: Humble Oil & Refining Co.'s No. 40-C West, sand 5,902-08 ft., 126 bbl., ⅛-in. choke. Humble Oil & Refining Co.'s No. 45-C West, sand 5,914-18 ft., 112 bbl., ⅛-in. choke. Fairbanks field: Gem Oil Co. and others' No. 1 White, sand 6,824-33 ft., 82 bbl., ⅛-in. choke. H. E. Williams and others' No. 6 Deacon, sand 6,826-56 ft., 108 bbl., ⅛-in. choke.

Jackson County

West Ranch field: Humble Oil & Refining Co.'s No. 1-B Toney, sand 5,524-45 ft., 390 bbl., ¼-in. choke. Magnolia Petroleum Co.'s No. 72-A West, perforated casing 5,880-92 ft., 597 bbl., ¼-in. choke. Superior Oil Co.'s No. 1 Miller, 5,782 ft., dry and abandoned.

(Continued on Page 312)

West, Central and Panhandle Texas

By

D. H. STORMONT

Open Mississippi Lime Pool In Central Stonewall County

MIDLAND, Tex., May 13.—Discovery of a new Mississippi lime oil-producing spot in Stonewall County led the field development in the West Texas district in the past week. Discoveries were made also in Ward County and in Ector County to mark one of the most profitable weeks of wildcat activity in many months.

The first oil production to be obtained from the Mississippian lime in Texas, Shell Oil Co., Inc.'s No. 1 Annie Smith, Section 143, Block 1, H.&T.C. Survey in the south-central part of Stonewall County, was last reported preparing to set casing after a flow of 280 bbl. of oil in 24 hours was recorded. The Mississippi lime was topped at 6,007 ft. and saturation was found at 6,015 ft. and drilled to a total depth of 6,028 ft. Crew was reported killing the well with intentions of underreaming the 5-in. casing from 5,840 ft. to the top of the pay zone. The crude tested 39 gravity, corrected.

The wildcat, a cable-tool test, was started by C. T. McLaughlin last July and had several promising shows of oil above the 5,840-ft. depth, at which the casing was hung. Shows were found at 4,395-97 ft., 5,180-85 ft., and from 5,970-72 ft., all in Pennsylvanian age rocks.

Geological work for the test was based on surface, subsurface and core-drill data. The wildcat field opener is located 2,310 ft. from the south and 330 ft. from the west lines of the section.

Ward County Discovery

After flowing an estimated 30 to 40 bbl. hourly with some water, casing was being cemented as the week closed at Ward County's newest field discovery. It is Atlantic Refining Co.'s No. 1 Wickett-University, Section 12, Block 16, University Lands Survey, 2½ miles west of the Estes field in northern Ward County. While taking a drill-stem test from 2,842 to 2,920 ft. the well began flowing. Some water accompanied the flow, but observers thought it to be drilling fluid. The flow was estimated to be 35 bbl. hourly. The drill pipe was pulled, after which the well resumed flowing at the rate of from 30 to 40 bbl. hourly. The bulk of the pay is believed to be in sand from 2,892 to 2,907 ft. where cores showed good saturation.

Some 20 miles northwest of the Atlantic discovery Ward County's new Delaware sand gas discovery of last week continued to show in excess of 10,000,000 cu. ft. daily. It is Kenneth Slack's No. 1 Hayes, Section 148, Block 34, H.&T.C. Survey, in the extreme northwestern corner of the county. After blowing wild for several days from a total depth of 5,063 ft., the gas volume was successfully killed when mud was pumped into the hole. A small amount of distillate is showing with the gas. Operators were last reported running 7-in. casing for completion.

Ector County

Indicating the discovery of a new producing spot from the regular Permian lime pay of Ector County, M. A. Grisham's No. 1 R. W. Cowden, Section 4, Block 45, Township 1n, T.&P. Survey, in the extreme northwestern corner of Ector County and northwest of the Goldsmith field, started flowing following acid treatment. After having drilled to a total depth of 6,090 ft. in search of production from the Holt horizon, the well was plugged back to 4,516 ft. and a 1,500-gal. treatment was given the Permian lime Goldsmith field pay zone. The well flowed 2 bbl. of oil hourly after initial treatment. A second-stage treatment of 3,000 gal. was injected into the pay zone and the well responded with a flow of 42 bbl. in 5 hours. Swabbing and testing continued as the week closed.

Crockett County

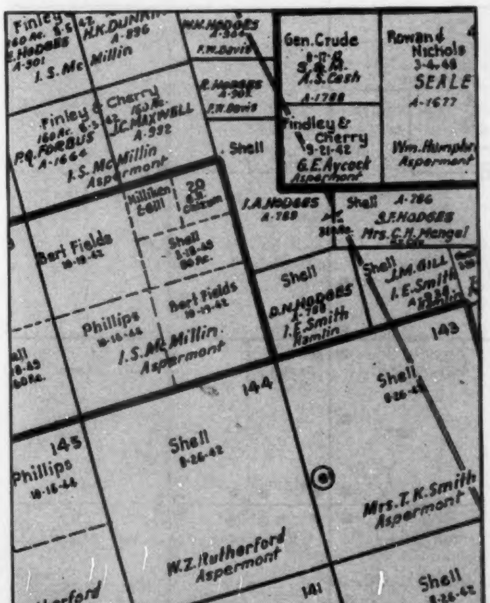
Soma Oil & Gas Syndicate's No. 1 Noelke, discovery well in Crockett County and at first hailed as a second Yates field discovery, was last reported making an increasing amount of oil. The well was given its official gage at the close of the week and made 129.70 bbl. of 32.2-gravity oil in 4 hours, with 19,000,000 cu. ft. of gas. Based on the 4-hour flow, the well is expected to be assigned a potential of 778.20 bbl. daily. The flow was through two 3-in. outlets on 7-in. casing. The 2-in. tubing, set at 1,032 ft., was closed during the test. The corrected total depth as reported by the operator is 1,039 ft.

Indications of another shallow-field discovery were seen when Moore Brothers' No. 1 Noelke, NW SE Section 10, Block GG, G.C.&S.F. Survey, 6 miles south of the Soma syndicate's well, was shut down for the erection of two 500-bbl. storage tanks before drilling plug. The well, which has been drilled as a "tight" operation, has cemented 5½-in. casing at 2,153 ft. Total depth is 2,233 ft. This depth is about 1,200 ft. deeper than the Soma discovery well.

WEST CENTRAL TEXAS

FORT WORTH, Tex., May 13.—New wildcats and field outpost locations featured the week's activity in the West Central Texas district, there being a total of six wildcats or outposts staked throughout five counties.

Haskell County, Pardue area, after receiving a failure early in the week, has been given another location which will attempt to extend the field across the line into Jones County. The test is J. C. Hunter and others' No. 1 Willie Z. Bettis, the first operation on a 2,200-acre block recently assigned Hunter by K. B. Nowels for development. The discovery well for the area was completed about 2 months ago by K. B. Nowels as a small producer from the Palo Pinto lime. The field is not the same as the small Pardue area opened about 2 years ago with production from the Adams Branch lime. Location for the new outpost test is 467 ft. from the north and east lines of a 358-acre tract in Section 1, T.C. Survey, about ¾ mile southwest of the discovery well.



Southwest Map Co., Fort Worth

Stonewall County was given a new field discovery from the Mississippian lime when Shell Oil Co., Inc.'s No. 1 Smith, in the southern part of the county, recorded a flow of 280 bbl. of 39-gravity oil in 24 hours. Saturation was drilled from 6,015-28 ft.

Failure for the Pardue area was seen when S. B. Roberts moved rig off of his No. 1 Pardue, a mile north of the discovery well. It is being plugged for abandonment at a total depth of 3,396 ft. Location is in Section 2, S.F.I.W. Survey.

Ellenburger Test

Location has been made in Eastland County for an Ellenburger lime wildcat test. It is Burton-Womack's No. 1 J. T. Collins, located 330 ft. from the north and 990 ft. from the east lines of NW Section 11, Block 1, H.&T.C. Survey.

In Jones County a new 2,650-ft. wildcat has been staked by Fain-McGaha Oil Corp. and Ungren & Frazier. It will be No. 1 W. G. Swenson, located in the J. McGrew Survey 245. The 2,650-ft. contract depth will not take it to the Palo Pinto lime pay horizon of Jones County; however, should no production be developed at the contract depth it was reported that the Palo Pinto lime might be tested.

Shackelford County

Two wildcats are preparing to get under way in Shackelford County, both shallow spudder tests. R. H. Roark and L. F. Hooker are spudding their No. 1 B. S. Walker, located 1,062 ft. from the southeast line and 755 ft. from the southwest line of Section 377, T.E.&L. Survey. It is contracted to 600 ft.

In Section 16 of the E.T.R.R. Survey, F. N. Palm has located his No. 1 M. E. Daniels, a shallow 800-ft. test to be drilled 520 ft. from the south and 950 ft. from the west lines of the NE of the section.

Throckmorton County

Shallow wildcat test for southeastern Throckmorton County has been staked by Walter Neustadt of Ardmore, Okla. It is his No. 1 R. A. Brown, located 860 ft. from the north and 550 ft. from the west lines of Section 1608, T.E.&L. Survey, 7 miles west and a mile north of the town of Woodson. It is about 4 miles west and slightly north of the Woodson shallow production.

WEST CENTRAL TEXAS COMPLETIONS

(24-hour gages)

Callahan County

In the Moran field J. M. Russell's No. 1 Gray, dry and abandoned at total depth of 480 ft.

In the Putnam field W. D. Austin's No. 4 Yarbrough, 305-28 ft., 10 bbl. West Brothers' No. 1 Hamp, dry and abandoned at total depth of 395 ft. Woodley Petroleum Co.'s No. 1 Finley, dry and abandoned at total depth 505 ft. A semiwildcat, Hagerty's No. 1 Smartt, dry and abandoned at total depth of 801 ft.

Coleman County

In the Novice field States Oil Corp.'s No. 5 Stockard, 3,612-39 ft., 40 bbl.

Eastland County

In the Olden field Teatsorth's No. 1 Marlow, dry and abandoned at total depth of 1,620 ft.

Jones County

Wildcat tests, Iron Mountain Oil Co.'s No. 1 Wiley, dry and abandoned at total depth of 4,023 ft. Humble Oil & Refining Co.'s No. 1 Clift, topped the Ellenburger lime at 5,688 ft., dry and abandoned at total depth of 6,020 ft. In the Lewis field Peckham's No. 9

(Continued on Page 310)

Kansas Developments

By
DAL DALRYMPLE

Open New Pools in Marion, McPherson, Barton Counties

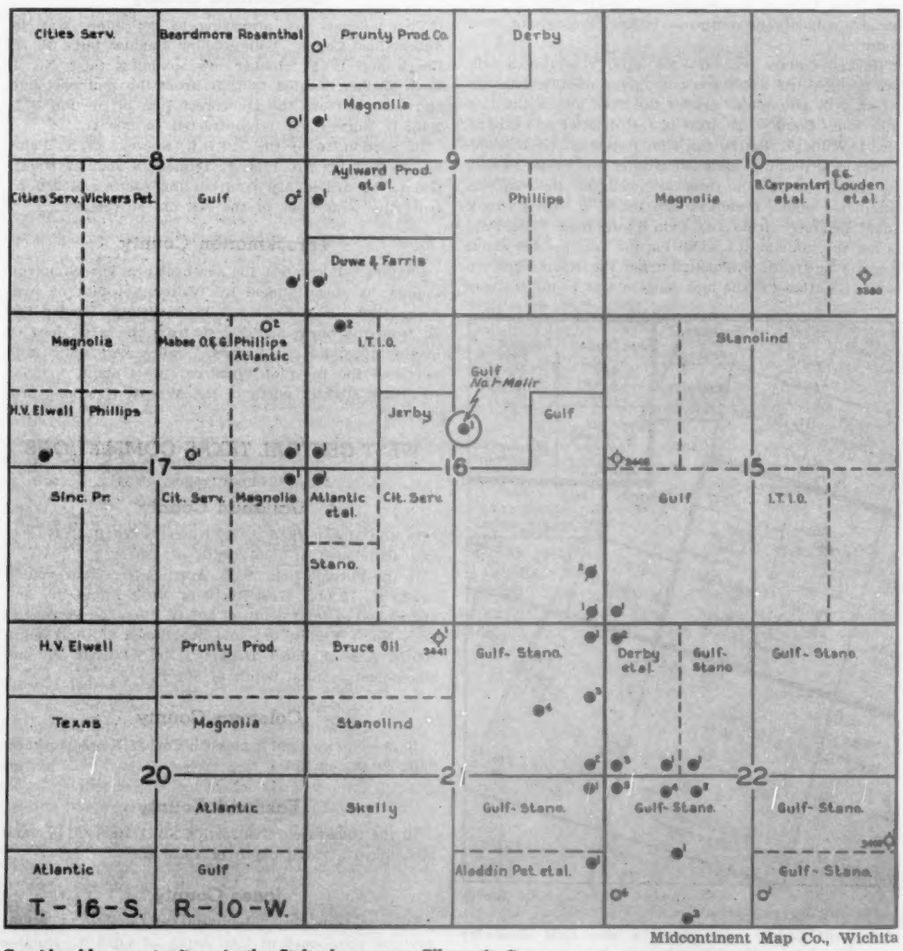
A new productive area in eastern McPherson County, Kansas, was opened at Aladdin Petroleum Co.'s No. 1 Bitikofer, CNL NE NW Section 1-20-1w, about 3½ miles east of the Ritz-Canton field. It found chat at 2,985-3,020 ft., total depth, and flowed an estimated 100 bbl. of oil daily, with gas estimated at 3,500,000 cu. ft. The crew was running liner preparatory to making a production test. Location is near the old abandoned Wenger pool. Continental Oil Co., which contributed to the test, A. J. Darrah of McPherson and the Aladdin companies own offset locations.

A chat discovery also was recorded in Marion County at J. L. Harrington & Loriaux Oil & Gas Co.'s No. 1 Belton, SE SE NE Section 30-17-4e, about 1¼ miles west of the Lost Springs pool. It topped Mississippian chat at 2,398 ft., had pay at 2,412-20 ft., total depth, and oil rose 2,300 ft. in the hole in 5 hours after drilling plug set on top of pay. Tubing and rods were run for production test. White Eagle division of Socony-Vacuum Oil Co. has completed line to the well from its Lost Springs gathering system.

A well midway between the West Prusa and Feltes pools in Barton County made top allowable potential of 3,000 bbl. of oil daily after acidizing. It was M. B. Armer and Vernon Oil & Gas Co.'s No. 1 Hoffman, CWL NW SW Section 18-16-11w, about 1 mile east of Feltes and same distance west of West Prusa. It topped Arbuckle lime at 3,317 ft., total depth 3,321 ft. It originally was completed last July as a Lansing lime producer and was deepened to Arbuckle zone. The new area has been named the Hoffman pool.

A discovery for Cowley County was indicated at Ryan Consolidated Oil Corp.'s No. 1-B Bouch, SW NE SE Section 13-30-5e, in the northern part of the county. Saturation was found in a Mississippian lime core at 2,785-2,800 ft. Rotary equipment was being replaced with cable tools to test the pay. Arbuckle lime was the original objective. Nearest production is ¼ mile southwestward, where two wells produce from Burbank sand on the pump.

Young & McLaughlin's No. 1 McLeod, C NW SW Section 4-10-20, Jefferson County, in the Forest City basin, topped Mississippian lime at 1,470 ft., had oil showing at 1,492 ft., with showings increasing when deepened to 1,504 ft. Six-inch casing was to be lowered to top of the lime and operators were expected to acidize and test.



Midcontinent Map Co., Wichita

Considerable new territory in the Stoltenberg area, Ellsworth County, was opened to development with completion of Gulf Oil Corp.'s No. 1 Malir, Section 18-16-10w, for top allowable potential of 3,000 bbl. of oil daily from Arbuckle lime at 3,317-22 ft. It is ½ mile east of production, similar distance southeast of production and nearly ¾ mile northwest of production

Wildcat Operations

Casualties among Kansas wildcats totaled six the past week. W. N. Bartlett's No. 1 Phannenstell, C SE NW Section 30-13-25w, western Trego County, based Kansas City lime at 3,980 ft., found Mississippi zone at 4,288 ft., dolomite 4,525 ft., Arbuckle lime 4,650-84 ft., total depth, and was dry and abandoned.

Hollow Drilling Co.'s No. 1 DeWorff, CSL SE NE Section 25-20-12w, south of the Clawson area, Barton County, was dry and abandoned in Arbuckle lime at 3,380-88 ft., total depth.

C. L. Sheedy and others' No. 1 Hook, NW SW NW Section 4-22-10, Greenwood County wildcat, had Mississippi lime at 2,333-69 ft., was acidized and estimated good for 5 bbl. of oil daily, was deepened to 2,460 ft., acidized with 10,000 gal., and was dry and abandoned.

Hawkeye Oil Co.'s No. 1 Russell, CWL NW SE Section 19-30-5, wildcat in Cowley County, missed Bartlesville sand, had Mississippi lime at 2,933-3,320 ft., Simpson zone 3,369 ft., Arbuckle lime 3,377 ft., nothing but water was showing and it was abandoned at 3,410 ft., total depth.

Morgan Petroleum Co.'s No. 1 Dunn estate, CSL SW NE Section 2-35-5, Cowley County wildcat, had Arbuckle lime at 3,565-3,603 ft., total depth and was dry and abandoned.

W. M. McKnab and others' No. 1 Sherwood, NE SE SW Section 4-35-5, wildcat in Cowley County, failed to find production and was dry and abandoned in Mississippi lime at 3,037-48 ft., total depth.

Cities Service Oil Co.'s No. 1 Ray, NE NW SE Section 32-5-20w, was location for a wildcat in Phillips County. Same company's No. 1 Hansen, SE SE NW Section 15-6-19w, wildcat in Rooks County, was a location. Gussman and associates' No. 1 Mudd, C W½ NW NE Section 16-15-15w, Russell County wildcat, was rigging up. Broadwater, Inc.'s No. 1 Heaton, CEL SE SE Section 28-17-1w, McPherson County wildcat, was moving in material.

Russell County

Texas Co.'s No. 2 Deines, CWL SW NE Section 19-13-14w, Atherton area, Russell County, was completed for initial potential of 286 bbl. of oil at total depth of 3,260 ft. Bridgeport Machine Co.'s No. 1 John Mills, NW NE NE Section 4-14-15w, was acidized and made daily potential of 770 bbl. of oil from Lansing lime at total depth of 3,205 ft. A. H. Witt's No. 2 Witt, Section 10-14-15w, Sullivan-Gorham area, was bottomed at 3,255 ft. in Gorham sand and completed for initial potential of 427 bbl. of oil in 24 hours. Gulf Oil Corp.'s No. 2 Everett, CNL SW SW Section 20-15-13w, Coralena pool, was bottomed at 3,120 ft. in Lansing lime, was acidized and made daily initial potential of 1,155 bbl. of oil.

Coralena Oil Co.'s No. 9 Dumler, CSL NW Section 36-15-14w, Trapp field, was completed for 24-hour potential of 2,298 bbl. of oil after acidizing Arbuckle lime at total depth of 3,321 ft. Mid-Continent Petroleum Corp.'s No. 7 Letsch, CNL NE NW Section 26-14-13w, Hall pool, was acidized at total depth of 2,924 ft. in Lansing lime and completed for initial daily potential of 511 bbl. of oil. Cities Service Oil Co.'s No. 5-D Krug, SW NE SE Section 24-15-14w, Trapp field, had potential calculated at 1,071 bbl. of oil daily and was completed at total depth of 3,326 ft. in Arbuckle lime. Cities Service Oil Co.'s No. 3-A Tittel, C W½ SE SW Section 12-15-14w, Trapp field, made daily potential of 567 bbl. of oil after acidizing and was completed at 3,315 ft., total depth, in Arbuckle lime. Shell Oil Co., Inc.'s No. 11 Dumler, CWL SW Section 36-15

14w. Trapp field, was acidized at total depth of 3,321 ft. in Arbuckle lime and made swabbing potential of 189 bbl. of oil daily. Courtney B. Davis' No. 5 Gaynor, C N½ SW NW Section 19-13-14w, Atherton area, recently was completed for top allowable potential of 3,000 bbl. of oil at total depth of 3,245 ft. Cities Service Oil Co.'s No. 5 Hennessy, C W½ W½ SE Section 26-15-14w, was dry and abandoned at 3,398 ft., total depth.

New work in Russell County: Haynes and others' No. 1 Driscoll, CNL SE SW Section 30-15-11w, drilling below 90 ft.; Cities Service Oil Co.'s No. 1 Rochester, SE SE NE Section 11-13-15w, building rotary rig; Carter Oil Co.'s No. 5 Josephine, CNL NE SE Section 7-15-13w, location; same company's No. 10 Detrick, CNL SE SE Section 8-15-13w, location; same company's No. 11 Detrick, CNL SW SE Section 8-15-13w, and No. 3 Sellens, C N½ N½ SW Section 17-15-13w, locations.

Estimated Daily Production

Estimated daily production for Kansas for the week ended May 11, and for the preceding week was as follows:

	Barrels	
	May 11	May 4
Oxford City	700	750
Burrton	7,950	8,000
Ritz-Canton	3,600	3,950
Graber	2,200	2,100
Hollow-Nikkel	1,400	1,600
Lerado	650	550
Voshell	1,500	1,450
Wellington	1,650	1,700
Ellsworth County:		
Lorraine	1,500	1,400
Other pools	1,975	1,335
Rice-Barton counties:		
Bloomer	2,750	2,600
Chase	3,450	3,700
Geneseo	2,650	2,650
Raymond	400	300
Silica	8,750	8,500
Keesling	650	650
Wherry	3,700	2,850
Miscellaneous Rice	1,220	1,965
Miscellaneous Barton	7,025	6,050
Trapp district	9,850	10,250
Balance Russell County	15,700	13,250
Sedgwick County	3,250	3,200
Ellis County:		
Bemis	6,050	8,150
Miscellaneous	6,900	6,530
Kingman County	690	615
Stafford County	6,800	6,660
Greenwood County	7,800	7,750
Eldorado	7,200	7,200
Other fields	28,090	31,945
Total Kansas	149,350	147,650

Barton County

B. B. & M. Oil Co.'s No. 2 Krier, NE NE SE Section 30-16-11w, Krier pool, Barton County, was acidized at total depth of 3,047 ft. and made top allowable potential of 3,000 bbl. of oil daily, by calculation.

Stanolind Oil & Gas Co.'s No. 7 Rose, SW SW NE Section 3-20-11w, Silica field, was bottomed at 3,318 ft., and made initial potential of 53 bbl. of oil daily from Arbuckle lime.

M. B. Armer & Vernon Oil Co.'s No. 1 Hoffman, CNL NW SW Section 18-16-11w, Prusa pool, was acidized and completed for top allowable potential of 3,000 bbl. of oil daily at total depth of 3,321 ft. in Arbuckle lime.

George W. Hinkle and others' No. 1 Wuenberg, SW SW NW Section 27-16-11w, was bottomed at 3,366 ft. in Arbuckle lime, acidized and daily potential was calculated at 2,983 bbl. of oil.

Shell Oil Co., Inc.'s No. 11-B Bitter, C W½ W½ SE Section 6-16-13w, Trapp field, was completed for 193 bbl. of oil daily, swabbing potential, at total depth of 3,354 ft. in Arbuckle lime.

First reports of new work in Barton County: Hollow Drilling Co.'s No. 2 Kowalsky, C N½ SE NE Section 18-20-11w, building rotary rig; Shell Oil Co., Inc.'s No. 12-B Bitter, SW SW SE Section 6-16-13w, cellar.

Ellis County

Cities Service Oil Co.'s No. 12 Colahan, C N½ Section 24-11-17w, Bemis field, Ellis County, was completed at 3,403 ft., total depth, in Arbuckle lime, for top allowable potential of 3,000 bbl. of oil daily after acidizing and by calculation.

Bay Petroleum Corp.'s No. 2-A Riddler, CEL NE NE Section 12-11-18w, Burnett pool, was treated with acid and daily potential was calculated at 3,000 bbl. daily, top allowable, producing from Arbuckle line at total depth of 3,445 ft.

Dickey Oil Co.'s No. 2 Husted, NE NE SW Section 18-11-17w, Burnett pool, made maximum daily allowable potential of 3,000 bbl. of oil at total depth of 3,282 ft. in Arbuckle lime.

Same company's No. 3-B Henderson, SE SW SW Section 6-11-17w, was rigging up rotary; Darby Petroleum Corp.'s No. 7 Handerson, C W½ NW NW Section 7-11-17w, rigging up rotary; Frank Hollow's No. 3 Cress, CNL NW SW Section 13-11-17w, moving in material; Bay Petroleum Corp.'s No. 3-A Ridler, NW NE NE Section 12-11-18w, drilling below 1,375 ft.; Phillips Petroleum Co.'s No. 4 Peavey, CNL NW SE Section 13-11-18w, cellar.

Second Well at Falls City Starts New Nebraska Play

FALLS CITY, Neb., May 13.—The second and largest producing oil well to be drilled in Nebraska was near completion at Pawnee Royalty Co.'s No. 1 Frederick Bucholz, C NW SW Section 17-1n-16e, near Falls City, Richardson County. After Hunton lime pay was acidized with 500 gal., it was swabbed at the rate of 700 bbl. Before acid treatment it had shown natural production of 40 bbl. daily.

Hunton lime was topped at 2,217 ft. and the hole was bottomed at 2,250 ft. After applying acid under 500 to 600 lb. per sq. in. pressure, the crew swabbed 30 bbl. of oil an hour for several hours, swabbing being suspended at 6 p.m. Friday, May 10. Shortly afterward it began flowing into the tanks from natural pressure. Flow for the next 20 hours averaged 13.75 bbl. an hour. A small quantity of gas was reported by the drillers, but the main pressure was believed to be hydrostatic. Flow was through 2½-in. pipe and 2-in. nozzle.

It was estimated the well would produce from 400 to 500 bbl. daily on the pump. Operators were reported undecided whether to put the well on the pump immediately. It was thought probable they might start a test run within a few days in an effort to qualify for the $15,000 bonus offered by the State of Nebraska for the first well in the state to produce as much as 50 bbl. daily for 60 consecutive days.

The U. S. Bureau of Mines reported the gravity of the oil to be 31.9°, and was expected to supply a complete analysis later.

Hunton lime was found 59 ft. higher than in the Nebraska discovery well, Pawnee Royalty Co.'s No. 1 Boice, C NE NE Section 18-1n-16e, about ½ mile north and ¼ mile west of the new producer.

The No. 1 Boice, first well in Nebraska and in the Forest City basin to find oil, tried for the $15,000 state bonus but failed because of caving hole. It started off at about 60 bbl. daily. After considerable delay caused by cavy hole and water intrusion, operators deepened the discovery to 3,300 ft., some 32 ft. in Arbuckle lime. Neither Wilcox sand nor Arbuckle lime was found productive, but there were showings of oil in Viola lime and geologists expressed the belief commercial production could have been developed in the Viola zone through acidization. Operators are expected to plug No. 1 Boice back to the original Hunton lime producing horizon and acidize. They believe water is coming from another level and think they can cement it off.

A brisk development was foreseen as the result of the Bucholz strike. The Skelly, Ohio, Indian Territory and Magnolia companies are leasing in the area. Several other companies, including Carter, Barnsdall, British American and Phillips, have sizable acreage holdings in Richardson County and some of them have done considerable geophysical work.

Most of the activity in the county, which is the farthest southeast county in Nebraska, followed the discovery of oil in No. 1 Boice, which was brought in November 1, 1939.

Richardson County lies against the Humboldt fault and for years has given surface indications of structures in several localities. During the last 6 months, Stanolind, Carter, Phillips and Indian Territory companies have had seismograph crews at work in the county for varying lengths of time. The Indian Territory Illuminating Oil Co.'s crew recently completed a 4-month seismograph survey, which was supplemented with core drilling.

Pawnee Royalty Co., which is an Odessa, Tex., firm owned by W. A. and B. G. Guinn, holds approximately 80,000 acres in Richardson County, Nebraska, and the northern townships of Brown and Nemaha counties, Kansas. Carter Oil Co., which at one time had about 35,000 acres under lease in Richardson County, has dropped approximately half of its leases but has paid rentals on scattered holdings estimated at about 15,000 acres. There are several other major acreage holdings, some of them in drilling blocks.

Prices on acreage close to the Bucholz well increased to a reported $10 and $20 an acre before it was brought in, with but few pieces unleased. Royalty within a mile of the Bucholz location sold sparingly for as high as $32.50 an acre.

The Pawnee company has not announced a new location but is expected to do so within a few days. Two other wells are being drilled in western Richardson County by Uhri Oil Co., largely with local financing. Uhri Oil Co.'s No. 1 Ogle, NE NW SE Section 9-1n-14e, a rotary test, was drilling below 700 ft. Same company's No. 1 Stauffer, SW SW NE Section 22-1n-13e, was drilling at about 600 ft. with cable tools.

Barber County

Olson Oil Co.'s No. 2 Whelan, C NW NW SW Section 29-31-11w, Whelan pool, Barber County, made initial daily potential of 943 bbl. of oil from chat at total depth of 4,358 ft.

Barbara Oil & Gas Co.'s No. 1 Holmes, C SW Section 28-33-13w, Medicine Lodge area, found Viola lime dry at 4,937-75 ft., total depth, and was reported being plugged.

Olson Oil Co.'s No. 1 Nuckolls, C NE NE Section 30-31-11w, was a location.

Rice County

Vickers Petroleum Co.'s No. 1 Scott, C E½ SW NE Section 20-20-10w, Raymond area, Rice County, found Arbuckle lime at 3,298 ft., total depth 3,304 ft., pumped 187 bbl. of oil in 8 hours and made daily potential of 562 bbl.

Shell Oil Co., Inc.'s No. 3 Brothers, CSL SE NW Section 31-20-7w, Wherry field, was retested by bottom-hole pressure method and made top allowable potential of 3,000 bbl. of oil daily at total depth of 3,322 ft.

Transwestern Oil Co.'s No. 3 Roesler, NW NW SE Section 5-18-10w, Bloomer-Stumps area, was treated with acid and made 24-hour initial potential of 802 bbl. of oil daily at total depth of 3,240 ft. in Arbuckle lime.

W. C. McBride, Inc.'s No. 3 Hodge, NE NE NE Section 25-20-6w, Bornholdt field, swabbed 35 bbl. of oil daily at total depth of 3,351 ft. in chat.

Westgate-Greenland Oil Co.'s No. 2 Johnson, CNL SE SE Section 24-20-6w, was rigging rotary. Continental Oil Co.'s No. 5-A Pickerill, SW NW NE Section 24-18-8w, was building rotary rig. Vickers Petroleum Co.'s No. 1-B Scott, CSL NW NE Section 20-20-10w, was rigging rotary.

Ellsworth County

Cities Service Oil Co.'s No. 2 Mollhagen, SW SW NE Section 29-17-9w, Wilkins pool, Ellsworth County, topped Arbuckle lime at 3,226 ft., was bottomed at 3,232 ft., and was completed for top allowable potential of 3,000 bbl. of oil daily.

Texas Co.'s No. 1 Schroeder, CNL NE SW Section 27-16-10w, Stoltenberg pool, was acidized and completed for total daily potential of 1,352 bbl. of oil after acidization at total depth of 3,290 ft. in Arbuckle lime. Phillips Petroleum Co.'s No. 2 Horejsi, CEL NE NE Section 17-16-10w, Stoltenberg pool, was bottomed at 3,400 ft. in Arbuckle lime, was acidized and completed for initial potential of 583 bbl. of oil daily. Magnolia Petroleum Co.'s No. 1 Skalicky, SW SW SW Section 4-16-10w, was abandoned at 3,397 ft. when sulfur water intruded. Continental Oil Co. and others' No. 2 Janzen, C W½ W½ SW Section 22-17-8w, was completed recently for 1,0o2 bbl. of oil daily at total depth of 3,240 ft.

Gulf Oil Corp.'s No. 3 Brasch, C W½ NW SE Section 16-16-10w, was moving in material. John Mabee's

No. 1 Kozisek, C N½ NE SE Section 18-16-10w, was rigging rotary. Atlantic Refining Co.'s No. 1 Stoltenberg, C N½ NE SE Section 27-16-10w, was building rotary rig.

Stafford County

Skelly Oil Co.'s No. 1 McNickle, CSL SW SE Section 2-24-11w, Zenith field, Stafford County, made top allowable potential of 3,000 bbl. of oil daily by bottom-hole pressure method and was completed at total depth of 3,765 ft. in Misener sand.

Stanolind Oil & Gas Co.'s No. 2 Heggy, CWL NE NE Section 10-24-11w, was bottomed at 3,790 ft. in Misener sand and completed for top allowable potential of 3,000 bbl. of oil daily, calculated by bottom-hole pressure. Same company's No. 1 William Krug, C W½ NE SW Section 2-22-12w, South Sittner area, was completed at total depth of 3,564 ft. for initial potential of 3,000 bbl. of oil, top allowable. Continental Oil Co.'s No. 1 Roohms, SW SW SW Section 14-24-13w, was completed as water-disposal well at 4,561 ft., total depth.

Champlin Refining Co.'s No. 1-A Snider, C N½ NW NW Section 3-21-11w, was drilling below 1,300 ft. Trigg & Allen's No. 2 Mellies, C S½ SW SW Section 36-21-12w, was building rotary rig.

Other Completions

In Woodson County, Woodson Pipe Line & Producing Co.'s No. 16 Rhea, SE SW NE SE Section 13-24-13, was completed for 25 bbl. of oil daily at total depth of 1,636 ft.

In Pratt County Skelly Oil Co.'s No. 2 Miller, C NW Section 36-27-11w, gaged 60,200,000 cu. ft. of gas and was completed at total depth of 4,105 ft.

In Stevens County Orville Parker and others' No. 1 Crawford heirs, C SW NE Section 30-33-37w, gaged 8,000,000 cu. ft. of gas and was completed at total depth of 2,812 ft.

In Cowley County W. L. Hartman and others' No. 1 Falkingham, CNL NW SE Section 22-30-4e, was abandoned in Arbuckle lime at 3,334-36 ft., total depth, when water intruded.

Rooks County: Broadview Oil Co.'s No. 2-A Livingood, CSL SW NW Section 11-9-16w, building rotary rig; Krueger's No. 3-C Tatkenhorst, CNL NW SW Section 11-9-16w, drilling below 1,860 ft.

Marion County: R. E. Youker's No. 3 Martin, C N½ N½ S½ Section 3-17-4, moving in material; W. C. Ritchey's No. 1-B Helback, NW NW NE Section 10-17-4e, rigging up machine; Ward McGinnis' No. 1 Nybert, SW SW NW Section 29-17-4e, location.

Greenwood County: C. C. Whittiker's No. 1 Adams, NE SW NE Section 17-28-11, rigging up machine.

West Texas Fields

(Continued from Page 307)

Brock, 1,880-82 ft., 25 bbl. Peckham's No. 10 Brock, 1,862-80 ft., 145 bbl.

Stephens County

A wildcat, C. K. West's No. 2-B Pierce, topped Ellenburger lime at 4,425 ft., dry and abandoned at total depth of 4,451 ft.

Taylor County

In the View field Tal Vez Oil Co.'s No. 1 Rister, dry and abandoned at total depth of 2,461 ft.

A wildcat, Texas Pacific Coal & Oil Co.'s No. 1 Reidenbach, Section 19, Grimes County School Lands Survey, topped Valera at 1,255 ft., topped Dothan at 2,150 ft., topped Bluff Creek at 2,470 ft., topped lower Hope at 2,664 ft., dry and abandoned at total depth of 3,275 ft.

WEST TEXAS FIELD COMPLETIONS

(24-hour gages)

Crane County

In the Tubb field, Humble Oil & Refining Co.'s No. 37 Tubb, 4,300-4,420 ft., 1,802 bbl.

In the Dunes field, Wasomes Oil Co.'s No. 2-5 University, 3,188-3,314 ft., 324 bbl.

Crockett County

A wildcat, Clark & Cowden's No. 1 C. D. Atwood, dry and abandoned at total depth of 2,473 ft. Moore Brothers' No. 1-X Henderson, dry and abandoned at total depth of 1,116 ft.

Ector County

In the Foster field, Broderick & Calvert's No. 22 Witcher, 3,969-4,170 ft., 1,124 bbl. Sinclair Prairie Oil Co.'s No. 2-B Johnson, 4,051-4,116 ft., 551 bbl. Stanolind Oil & Gas Co.'s No. 40-B E. F. Cowden, 3,995-4,200 ft., 296 bbl. Stanolind Oil & Gas Co.'s No. 37 Witcher, 3,940-4,140 ft., 375 bbl. Sunray Oil Co.'s No. 1-J Johnson, 4,085-4,308 ft., 578 bbl.

In the North Cowden field, Cities Service Oil Co.'s No. 2-B Wight, 4,075-4,230 ft., 931 bbl. Llano Oil Co.'s No. 1-A O. B. Holt, 4,107-4,230 ft., old well restested for new initial production of 933 bbls.

In the Goldsmith field, Gulf Oil Corp.'s No. 268 Goldsmith, 4,162-4,224 ft., 186 bbl. Gulf Oil Corp.'s No. 270 Goldsmith, 4,131-4,220 ft., 869 bbl. Gulf Oil Corp.'s No. 275 Goldsmith, 4,186-4,234 ft., 748 bbl. Gulf Oil Corp.'s No. 276 Goldsmith, 4,120-81 ft., 748 bbl. Phillips-Pure's No. 84 C. Cowden, 4,113-55 ft., 803 bbl.

In the Holt field, Barnsdall Oil Co.'s No. 1 B. H. Blakeney, top anhydrite 1,590 ft., top brown lime 3,750 ft., top solid lime 3,890 ft., dry and abandoned at total depth of 5,220 ft.

Gaines County

In the Seminole field, Atlantic Refining Co.'s No. 5-B Riley, 5,156-5,275 ft., 877 bbl. Atlantic Refining Co.'s No. 3-C Riley, 5,090-5,300 ft., 756 bbl. Magnolia Petroleum Co.'s No. 4-265 H. & J., 5,155-5,314 ft., 811 bbl.

Hockley County

In the Slaughter field, Devonian Oil Co.'s No. 1 L. F. Hudgens, 4,875-5,024 ft., 878 bbl.

Howard County

In the Snyder field, D. C. Reid's No. 1 D. H. Snyder, 2,615-2,862 ft., 157 bbl.

Pecos County

In the Tobarg field, Cardinal Oil Co.'s No. 56-E Tippett, 489-491 ft., 24 bbl. A. J. Rife's No. 15 Tippett, 417-429 ft., 76 bbl.

In the Fromme field, Culbertson & Irwin, Inc., and Street's No. 2 Ed Fromme, 1,340-1,615 ft., 49 bbl. L. W. Fritz's No. 3 Redmond-Iowa Realty Co., 1,590-1,660 ft., 210 bbl.

A wildcat, Humble Oil & Refining Co.'s No. 1 B. D. Young, top anhydrite at 517 ft., top detrital zone at 5,185 ft., top Simpson of Ordovician at 5,624 ft., dry and abandoned at 7,430 ft., still in Simpson.

Stonewall County

A wildcat, W. I. Southern, Inc.'s No. 2 Carlisle, top Palo Pinto at 5,147 ft., completed last year for 248 bbl. daily, drilled deeper and topped Ellenburger at 6,540 ft., top Hickory sand at 6,725 ft. Plugged back to 5,165 ft. and completed in same pay for 361 bbl. daily.

Upton County

In the McCamey field, Clark & Cooper's No. 1 King, 2,143-58 ft., 66 bbl.

Ward County

In the Estes field, Gulf Oil Corp.'s No. 132 Estes, 2,535-2,689 ft., 1,290 bbl. Gulf Oil Corp.'s No. 133 O'Brien, 2,780-2,870 ft., 33 bbl. Texas Co.'s No. 2-E University, 2,670-2,700 ft., 838 bbl.

In the Sealey field, McQueen & Clevenger's No. 6 Sealy, 2,995-3,001 ft., 872 bbl.

In the Payton field, Edwards, Moore & Donnelly's No. 3 Reynolds, 1,872-1,905 ft., 349 bbl.

Yoakum County

In the Wasson field, Continental Oil Co.'s No. 4-867 Kendrick, 5,015-5,120 ft., 1,540 bbl. Denver Producing & Refining Co.'s No. 18 Whittenburg, 4,785-5,130 ft., 1,318 bbl. Honolulu Oil Corp.'s No. 11-804 Wilder, 5,000-5,130 ft., 1,007 bbl. Humble Oil & Refining Co.'s No. 1 Ammie Armstrong, 4,914-5,114 ft., 1,135 bbl. Mabee Oil & Gas Co.'s No. 4-C Willard, 4,880-5,170 ft., 455 bbl. Shell Oil Co., Inc.'s No. 9-A Baumgart, 4,800-5,194 ft., 1,750 bbl. Shell Oil Co., Inc.'s No. 9-D Baumgart, 4,884-5,190 ft., 1,414 bbl. Shell Oil Co., Inc.'s No. 5-E Baumgart, 4,900-5,197 ft., 1,031 bbl.

TEXAS PANHANDLE COMPLETIONS

(24-hour gages)

Carson County

Shell Oil Co., Inc.'s No. 9 Cooper C, 2,975-3,075 ft., 428 bbl.

Gray County

King Oil Co.'s No. 7 Chris Baer B, 3,250-90 ft., 402 bbl. Magnolia Petroleum Co.'s No. 6 Wall, 3,200-90 ft., 83 bbl., pumping. McIlroy Oil Co.'s No. 3 Leopold, 3,304-29 ft., 146 bbl. Sinclair Prairie Oil Co.'s No. 4 Pope, 3,177-3,267 ft., 147 bbl. Stanolind Oil & Gas Co.'s No. 8 Hood, 2,963-3,100 ft., 349 bbl.

Hutchinson County

Phillips Petroleum Co.'s No. 46 Cockrell, 2,960-3,038 ft., 328 bbl. Power Petroleum Co.'s No. 8 Haile, 2,980-3,035 ft., 495 bbl. Stanolind Oil & Gas Co.'s No. 19 Haile B, 2,970-3,012 ft., 268 bbl., pumping. Stanolind Oil & Gas Co.'s No. 7 Pitcher, 3,050-3,160 ft., 258 bbl. Stanolind Oil & Gas Co.'s No. 13 Ware C, 3,035-3,104 ft., 181 bbl., pumping.

Motley County

Humble Oil & Refining Co.'s No. 2 Matador, Survey 1, Blanco County School Lands, dry and abandoned at 8,604 ft. in granite rock.

Wheeler County

J. P. Ledford's No. 1 Sloss, 2,060-94 ft., 97 bbl.

La.-Ark. Fields

(Continued from Page 302)

Co.'s No. 2-B Stiles, Section 33-21-16, pumping 30 bbl., total depth 1,930 ft. L. O. Gandy's No. 1 Whatley, Section 12-20-16, pumping 35 bbl., total depth 1,535 ft. Magnolia Petroleum Co.'s No. 33 Dillon, Section 24-21-15, pumping 30 bbl., total depth 1,690 ft. Bobby Manziel's No. 1-B Muslow, Section 6-20-15, 250 bbl., total depth 1,570 ft. Sklar Oil Corp.'s No. 1 Hobbs, Section 21-21-15, pumping 35 bbl., total depth 1,585 ft. Stanolind Oil & Gas Co.'s No. 14 Slattery, Section 21-21-15, pumping 20 bbl., total depth 1,595 ft.

Monroe—Morehouse Parish

Southern Carbon Co.'s No. 29 Tensas, Section 34-22-4, 2,500,000 cu. ft. of gas, rock pressure 870 lb., total depth 2,200 ft.

Zwolle—Sabine Parish

P. C. Alexander's No. 1 Peters, 327 ft. north and 346 ft. west of SE cor. SE NW SE Section 30-8-12, pumping 50 bbl. of oil and 30 bbl. of salt water, total depth 2,544 ft. George L. Pace's No. 4 Logan Oil Co., 390 ft. south and 300 ft. east of NW cor. SW Section 26-10-13, pumping 5 bbl. of oil and 25 bbl. of salt water, total depth 1,981 ft.

ARKANSAS COMPLETIONS

Atlanta—Columbia County

Tide Water Associated Oil Co. and Seaboard Oil Co.'s No. 1 C. H. Murphy, C SW NE Section 14-18-19, 200 bbl., ¼-in. choke, tubing pressure 250 lb., casing pressure 1,250 lb., perforated at 8,155-71 ft., total depth 8,177 ft. G. H. Vaughn's No. 1 J. K. Mahoney, trustee, C NW NW Section 13-18-19, 208 bbl., various chokes, casing pressure 1,400 lb., tubing pressure 450 lb.

Lewisville—Lafayette County

East Texas Refining Co. and others' No. 1-C Warren, C NE SE NW Section 24-16-24, dry and abandoned at 2,345 ft.

Smackover—Ouachita County

Liberty Oil Co.'s No. 1 P. T. Hildebrand, Section 28-15-15, pumping 100 bbl. of fluid, 90 per cent salt water, total depth 2,680 ft.

Urbana—Union County

Barnsdall Oil Co.'s No. 1 North Central Texas, Section 5-18-14, dry and abandoned at 3,838 ft.

EAST TEXAS BORDER COMPLETIONS

Wildcat—Cass County

E. A. Stiller's No. 1 Glass, J. Paxton Survey, dry and abandoned at 4,000 ft.

Wildcat—Harrison County

Fohs Oil Co.'s No. 1 Sypert, Hooper Survey, dry and abandoned at 4,559 ft.

Rodessa—Marion County

C. M. Beckett's No. 1 Perry, 126-acre tract, C. Grayson Survey, 214 bbl., 12/64-in. choke, tubing pressure 250 lb., casing pressure 950 lb., total depth 6,120 ft.

Southwest Texas District

By F. L. SINGLETON

3 Pools Opened and Fields Extended in One Busy Week

CORPUS CHRISTI, Tex., May 13.—An interesting week of developments was marked up for the Southwest Texas district, as three new pools were opened and important extensions and new sand discoveries were indicated for several proven areas. The new fields included the north Robstown area, Nueces County, Orange Grove, Jim Wells County, and the Bloomington field, Victoria County.

Richardson Petroleum Co.'s No. 1 Rudolph Studer, 1½ miles north of Robstown, and about 2 miles southeast of the Robstown field, was flowing into the pits at the close of the week at the rate of 225 bbl. of pipe-line oil per day through ¼-in. choke. Tubing pressure was 525 lb. and casing pressure 1,550 lb. Production is from two sand sections. The well is flowing oil and gas through tubing from perforated casing at 5,195-5,207½ ft., and gas through the casing from perforations at 4,583-90 ft. The completion was made by setting tubing on a packer so that the oil and gas from the lower sand could be produced through tubing and gas from the upper sand through the casing. The gas will be used as fuel for additional wells.

The discovery is in the center of combined Lots 4, 5, and 6, Block 17 of the Pauls subdivision of the Driscoll ranch, on a farmout lease from Shell Oil Co., Inc. Protection acreage is held by several major and independent companies and an active development program is anticipated.

A major extension of a separate producing area flanking the east side of the Flour Bluff field, Nueces County, was indicated by Humble Oil & Refining Co.'s No. 1-D State, about 1½ miles from production in Laguna Madre Bay. This well, which is on the downthrow side of a major fault flanking the east side of the field, cored broken sand and shale showing gas at intervals from 6,596 to 6,739 ft., and a saturated sand section at 6,777-96 ft., the total depth. The well was originally started as a 10,000-ft. test, and the hole may be drilled deeper before casing is cemented for a production test.

Another field for the Jim Wells County sector of the Frio-Vicksburg trend was opened with the completion of Henshaw Brothers' No. 1 Pauline Blashke, 1½ miles southeast of the Wade City field. Drilled to 5,603 ft., production was obtained by perforating casing at 5,100-03 ft., and the well is flowing into the tanks at the rate of 25 bbl. of oil per day through a 7/64-in. choke. Casing pressure was 1,800 lb. and tubing pressure 800 lb. The well is estimated to be making 15 per cent salt water. The location is about 1 mile northeast of the town of Orange Grove in the Casa Blanca grant. The structure was found about 2 years ago, and some geologists are of the opinion that the well is on the edge of the structure. Approximately 4,000 ft. southwest of the discovery, Mid-Continent Petroleum Corp. is moving in material for No. 1 Schoveogel in Lot 5 of the Casa Blanca grant.

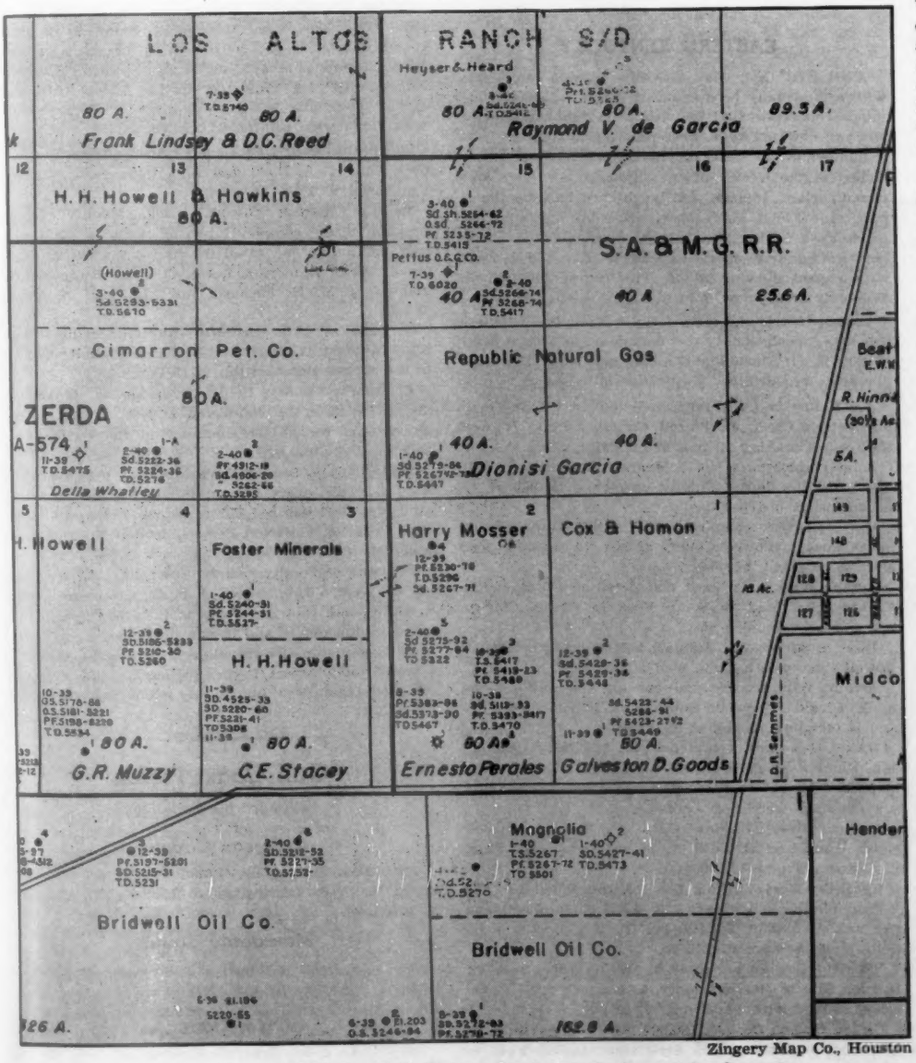
The producing area of the Wade City field, Jim Wells County, was further extended as J. V. Calvert and others prepared to complete No. 1 Spoetzl, after the well flowed pipe-line oil and tested 72 lb. working pressure on a 15-minute drill-stem test at 4,811-14 ft., the total depth. The well is situated in the William Hobb Survey 2, about 2,000 ft. north of production. Two more producers were added to the field, as Rodney LeLange's No. 7 McNeill flowed 107 bbl. in 10 hours through a 3/16-in. choke from perforated casing at 4,939-43 ft., and Smith & Mowinkle completed No. 1-A Nollkamper for an initial production of 342 bbl. per day through a 3/16-in. choke from perforated casing at 4,918-26 ft.

Another field for Victoria County, 2½ miles west of the Heyser field, was being opened as Texas Gulf Production Co.'s No. 1 Kester was cleaning out at the close of the week, flowing at the rate of 16 bbl. of fluid per hour through a 7/64-in. choke, with tubing pressure 875 lb. Ninety per cent of the fluid was 37-gravity oil, and the balance was sediment and salt water. The well was drilled to a total depth of 6,881 ft., and is testing through perforated casing at 5,883-85 ft. An electrical survey is reported to have shown the sand section at 5,880-88 ft., and a gas sand at 5,090-5,135 ft.

C. L. Norsworthy's No. 1 T. C. Holman, 1 mile northeast of the Fagan field, Refugio County, blew out while pulling drill stem at 2,260 ft. It was brought under control, but progress has been delayed by a fishing job. In the field proper, Quintana Petroleum Corp.'s No. 1 Fagan is reported to have shown an increase in salt-water content, and is being recompleted. The crew has been testing for several days through perforated casing at 5,841-43 ft.

In Duval County, and situated about 3 miles east of the Fitzsimmons field, Sun Oil Co. was testing No. 1 Garcia. The well was drilled to 5,087 ft., and 5½-in. casing cemented at 4,949 ft. A 25-minute drill-stem test at 4,839-45 ft., tested 3 lb. working pressure and 105 ft. of mud, cut with oil and gas, and 240 ft. of salt water, while another 18-minute test at 4,900-16 ft. showed 34 lb. working pressure and 140 ft. of 44.7-gravity oil. At the close of the week, a production test through perforated casing at 4,900-10 ft. is reported to have developed salt water. Along the same trend and about 10 miles northwest of San Diego, Bridwell Oil Co. staked location for a Cockfield test on the W. L. Rogers, Jr., lease in Survey 21.

In the Laredo district, preparations were made to test two probable pool openers. Government Wells Oil Co.'s No. 1 E. C. Lundell, about 6 miles northwest of Freer, J. Poitevent Survey 364, Duval County, has casing cemented and the Cole sand, cored at 1,347-59½ ft., the total depth; will be tested. In Webb County, approximately 7 miles north of Bruni, W. C. McBride, Inc.'s No. 2 Leal, Survey 461, is bottomed at 3,000 ft., and casing was cemented to test sand at



Zingery Map Co., Houston

Plat of the Ben Bolt field, Jim Wells County, showing trend of recent developments

2,525-39 ft., where drill-stem testing showed several pounds of working pressure.

Southwest of the Sun field, Starr County, Sun Oil Co.'s No. 1 Lehr, is coring below 5,433 ft. It is reported that casing will be cemented in this well in the near future preparatory to testing a sand section at 4,800 and 5,200 ft., which showed promise of production on drill-stem tests. A new location was announced by the company for No. 1 Claude King, about 6,500 ft. south of No. 1 Lehr, in Survey 511.

Carter & Rubsamen's No. 13 Houston Oil Co., Carolina-Texas field, Webb County, is bottomed at 5,113 ft., and 9⅝-in. casing was cemented at 5,099 ft. The operators will perforate casing for a production test in the Queen City formation, and if it fails, the hole is expected to be drilled to the Tertiary Wilcox.

In Live Oak County, prospect of opening Wilcox production in Edwin M. Jones' No. 1 West was not encouraging as the well swabbed salt water through perforated casing at 7,645-60 ft. The crew is testing the upper section of the formation, after several production tests in the lower section showed salt water, with slight indications of gas.

Along the Balcones fault-line district, and 1 mile north of the Riddle field, Bastrop County, Ogden & Riddle were testing No. 6 Riddle. The hole is bottomed in chalk at 2,244 ft., and 5½-in. casing was cemented at 2,005 ft. Taylor marl, with a showing of oil, was cored at 1,841-58 ft., and lime with a showing of oil at 2,018-24 ft., and 2,170-74 ft. Top of the Dale lime was 2,020 ft. and the chalk formation was topped at 2,214 ft.

SOUTHWEST TEXAS COMPLETIONS IN PROVEN FIELDS

Aransas-San Patricio Counties

McCampbell field: Bay Tex Oil Corp.'s No. 1 Bronquist, 7,502 ft., 60 bbl. distillate, ⅝-in. choke. F. A. Gillespie's No. 1 Kidd, perforated casing 7,102-07 ft., 127 bbl., jetting. Southern Minerals Corp.'s No. 4 Carlock, perforated casing 7,140-48 ft., 125 bbl., 5/32-in. choke. Southern Minerals Corp.'s No. 3-A Porterfield, perforated casing 7,136-41 ft., 125 bbl., ⅛-in. choke.

Duval County

Cedro Hill field: Humble Oil & Refining Co.'s No. 10-F Duval County Ranch Co., 1,443 ft., 25 bbl., fluid 12 hours, 6 per cent water, pumping. Magnolia Petroleum Co.'s No. 4 Duval County Ranch Co., perforated casing 1,437-39 ft., 15 bbl., ⅝-in. choke. Driscoll field: Continental Oil Co.'s No. 48-A Driscoll, perforated casing 3,350-53 ft., 132 bbl., ¼-in. choke. Hoffman field: Magnolia Petroleum Co.'s No. 52 Weil, sand 2,798-2,810 ft., 97 bbl., ½-in. choke. Longhorn field: M. M. Miller & Son's No. 22 fee, sand 4,025-67 ft., 75 bbl., jetting.

Jim Hogg-Brooks Counties

Kelsey field: Humble Oil & Refining Co.'s No. 65 McGill, 4,783 ft., dry and abandoned.

Jim Wells County

Premont field: Howell & Hubbell's No. 1 Canales, 2,363 ft., 48 bbl., jetting, 90 per cent water. J. E. Johnson's No. 1 Blower, perforated casing 2,352-58 ft., 100 bbl., jetting. Wade City field: Arkansas Fuel Oil Co.'s No. 2 McNeill, perforated casing 4,928-35 ft., 149 bbl., 3/16-in. choke. Rodney DeLange's No. 6 McGill, perforated casing 4,928-34 ft., 209 bbl., 3/16-in. choke.

Live Oak County

Oakville field: Moore Development Co.'s No. 1 Rosebrock, perforated casing 2,787-97 ft., 69 bbl., jetting.

Victoria County

Victoria field: Duke Matthews' No. 1 Bissett, 3,077 ft., dry and abandoned.

Refugio County

Tomoconnor field: Quintana Petroleum Corp.'s No. 21-A Williams, perforated casing 5,877-85 ft., 683 bbl., ¼-in. choke.

Nueces County

Richard King field: Southern Minerals Corp.'s No. 8-A King, perforated casing 5,401-06 ft., 80 bbl., ⅛-in. choke. South Clara Driscoll field: O. W. Killam's No. 4 Holmes, perforated casing 5,070-90 ft., 150 bbl., 3/16-in. choke. Stratton field: Gulf Plains Corp.'s No. 1 Dryden & Moosely, perforated casing 6,410-30 ft., 25 bbl. distillate, open flow.

Webb County

Adami field: Humble Oil & Refining Co.'s No. 4 Yeager, 990 ft., 17 bbl. fluid, 12 per cent water, pumping. Humble Oil & Refining Co.'s No. 6 Yeager, 996 ft., 19 bbl., fluid, 12 per cent water, pumping. Humble Oil & Refining Co.'s No. 7 Yeager, 996 ft., 21 bbl. fluid, 6 per cent water, pumping. Volpe field: Magnolia Petroleum Co.'s No. 32 Volpe-Benavides, 2,509 ft., dry and abandoned.

Zapata County

Comitas field: J. P. Nash's No. 37-A Haynes, 1,109 ft., 30 bbl., pumping. Mirando Valley field: John Camp's No. 3 Hinnant, 1,868 ft., dry and abandoned.

Kentucky Fields

(Continued from Page 295)

L. F. Boone's No. 1 Harris, abandoned location. Niagara district: Chester Oil Co. and others' No. 5 Mrs. Eula Jones, abandoned location. Bluff City district: A. V. Smith and others' No. 1 B. B. Morris, moving in. Sebree district: T. L. Boyce's No. 3 Arabella Walker, dry hole through McClosky; total depth 2,457 ft.

McLean County, Beeler's Knob district: O. D. Vickers and others' No. 4 C. S. Vickers, dry hole through stray sand at 600 ft.

Muhlenberg County, Belton district: Walter Hagan's No. 1 Drake, dry hole in Devonian lime, total depth 3,003 ft.

Ohio County, Fordsville district: Mecca Oil Co.'s No. 5 Betty Cullen, dry hole through Jett sand, total depth 491 ft. Pattyville School district: P. P. Murphy and others' No. 4 Floyd Walker, spudding in.

EASTERN KENTUCKY

ASHLAND, Ky., May 13.—Six oil-well completions with a total daily production of 73 bbl. of oil, a cleaning-out operation that resulted in a 20-bbl. production and two new gas wells, were reported in the past week. A number of gas wells not heretofore reported are included in the week's news, although they were completed earlier. Interest was heightened here by the report that Floyd Fitch had completed his No. 2 on Birch Fork in Morgan County. Production data were not available but reports indicate it is a good gas well with a good showing of oil. This completion will undoubtedly create new interest in the Jeptha dome.

Loutan Hedric and others' No. 8 Marcum on Miller's Creek in Powell County was completed at a total depth of 900 ft. It started at 25 bbl. per day. The same operators are drilling No. 9 Marcum at 50 ft.

Joe T. Brown, treasurer, completed No. 6 Larry heirs on Miller's Creek in Powell County at 950 ft., and the well is making 10 bbl. of oil daily.

John Hilphistine's No. 5 Monroe Faulkner on Miller's Creek in Powell County completed at 900 ft., is producing 25 bbl. per day.

C. F. Beavers completed, No. 2 Bill Campbell, on South Fork in Powell County at 800 ft., with the well starting at 5 bbl. per day.

Agatha Wireman's No. 3, completed at 950 ft. on the Kinser heirs' land on South Fork in Powell County, was good for 5 bbl. a day.

Mays & White's No. 2 Stuart heirs on South Fork in Powell County is a 3-bbl. well at 800 ft.

Arthur Wireman cleaned out an old well on the E. A. Wireman farm on South Fork in Powell County and is pumping 20 bbl. of oil daily.

Inland Gas Corp. completed No. 206 Zada Hutchinson, Right Fork of Troublesome Creek, Knott County, at 2,922 ft. in white slate. The well was shot but production data were not available.

Kentucky-West Virginia Gas Co.'s No. 250 Charles Goble completed at 2,648 ft. in shale, had an initial gas production of 133,000 cu. ft.

Kentucky-West Virginia Gas Co. completed No. 583 Wilson Short on Rockcastle at 3,253 ft. in shale, and the well is making 353,000 cu. ft. of gas with a 12-hour rock pressure of 245 lb.

Warfield Gas Co.'s No. 4870, David Ward tract on Hogden Run in Martin County, total depth 2,805 ft., in shale, started with 84,000 cu. ft. of gas.

United Carbon Co. has 100,000 cu. ft. of gas production from No. 822 Republic Steel tract, on Dry Fork in Pike County, at a total depth of 4,302 ft. in shale. This was one of the deeper Pike County wells. United Carbon also completed No. 823 on the Charley Fork's No. 1 tract on Biggs Branch in Pike County at 3,923 ft., and has a daily flow of 245,000 cu. ft. of gas.

Hamilton Gas Co.'s No. E-18, Lindsey Amburgey land on Troublesome Creek in Knott County, was good for 73,000 cu. ft. daily at a total depth of 3,043 ft. in shale. The same concern reports a 216,000-cu. ft. initial gas flow from No. D-85 on the James Hatcher land, also on Troublesome Creek in Knott County, total depth 2,571 ft. in shale.

Rockcastle Gas Co. completed No. 3 Vinson heirs' land on Buffalo Horn in Martin County. It started with 249,000 cu. ft. of gas daily, total depth 2,793 ft. in shale.

Sturgill Gas Co.'s No. 1 Kate Weddington on the Left Fork of Toler Creek in Floyd County, total depth 3,125 ft. in shale, started with 50,000 cu. ft. of gas.

A Virginia well of interest to Kentucky operators was completed at a total depth of 3,750 ft. Southwest Drilling Co., after losing the hole in No. 1 Hagan heirs on Left Fork of Stoney Creek in Wise County, Virginia, was shut in and has a 65,000-cu. ft. gas production coming from shale. The concern is planning to drill another well within a mile of No. 1. This well is very close to the Virginia-Kentucky border.

OHIO FIELDS

NEWARK, Ohio, May 13.—Thirteen wells were completed in the Ohio fields covered by this report, 5 oil wells, 3 gas wells and 5 dry holes.

In Coshocton County, Jefferson Township, Warsaw Oil & Gas Co.'s No. 1 D. F. Laughlin, Section 11, was dry through the Clinton, depth 3,410 ft.

In Guernsey County, Wills Township, Dollison & Somers' No. 1 William Marshall, Section 1, Berea, was dry, depth 1,236 ft.

In the Newark field, Licking County, Newton Township, Ohio Fuel Gas Co.'s No. 1 Harry A. Phillips, fourth quarter, gaged 500,000 cu. ft. of gas, open flow from Clinton sand at 2,424-44 ft.; Newark Township, National Drilling Co.'s test in Lot 47 of Broadway Manor subdivision is a gas well good for 500,000 cu. ft., open flow, from Clinton at 2,295-2,321 ft.

In Lorain County, Penfield Township, Ohio Fuel Gas Co.'s No. 1 C. A. Buell, Lot 46, Clinton sand, was dry; abandoned at 2,650 ft.

In the Chatham Township field, Medina County, Preston Oil Co. completed two oil wells in the Berea, each making 15 bbl. of oil the first day after the shot; No. 20 W. C. Vanderink, Lot 4, Tract 10, depth 329 ft., and No. 6 M. H. Packard, Lot 27, Tract 16, depth 484 ft.

In Meigs County, Bedford Township, Bengel Co.'s No. 1 William St. Clair, Section 28, is a small gas well in the second Berea, depth 1,713 ft.

In Monroe County, Bethel Township, H. B. Walker Co., in Section 29, completed a test on the Harry Ayers tract for a 1-bbl. pumper in the second Cow Run sand, depth 1,020 ft.

Noble County, Beaver Township, Ohio Fuel Gas Co.'s No. 1 J. K. Shamhart, Section 28, was abandoned. Berea sand was dry, depth 1,575 ft. Stock Township, Lumbatis Co.'s No. 1 Marion Pepper, Section 30, is a 2-bbl. well in salt sand at 868-75 ft.

Tuscarawas County, Sandy Township, Natural Gas Co. of West Virginia's No. 1 F. C. Hrometz, Section 6, had a small showing of gas in the Red Clinton, shot failed to improve it, and it was abandoned at 4,731 ft.

In Washington County, Liberty Township, Baker & Daley's No. 5 Albert Pryor, Section 22, has a settled oil production of 8 bbl. a day from the Keener at 1,380-85 ft.

Gulf Coast Fields

(Continued from Page 306)

Jefferson County

West Beaumont field: Stanolind Oil & Gas Co.'s No. 3 Keith & Dowlen, sand 5,363-80 ft., 419 bbl., ¼-in. choke.

Matagorda County

Bay City field: Hamman Exploration Co.'s No. 2 Richers, 8,949 ft., 103 bbl., jetting.

Tyler County

Joe's Lake field: Republic Production Co.'s No. 35 fee, sand 7,660-7,705 ft., 375 bbl., ¼-in. choke.

California Field Report

By
L. P. STOCKMAN

Two Pools Are in Prospect for Cantua Sector, Fresno County

LOS ANGELES, Calif., May 13.—With no pool discoveries since August of last year, when Western Gulf Oil Co. found the Paloma field of Kern County productive, prospectors had come to the conclusion that there might not be any important discoveries this year. This fear was changed to hope when Texas Co. made a formation test on No. 1 Southern Pacific on Turk anticline in Fresno County at 9,330-60 ft. and obtained a wet-gas blow for 1 hour and 50 minutes. This wildcat, which was carried down to 10,116 ft. and then plugged back to 9,360 ft. for a test of some showings at that point, is not definitely assured of commercial production, although the crews who have worked on the well feel that Texas Co. will have opened a new field as soon as the well is turned loose. A water string was cemented within a short time after the formation test had indicated a possible commercial accumulation and a production test is scheduled to be made later this week.

No. 1 Southern Pacific is in Section 23-17-15, about 9 miles north of the northern limits of the Northeast Coalinga field. The interval to be tested is the equivalent of the Gatchell sand, which has been found highly productive in the Northeast and Southeast Coalinga fields. On the formation test with a packer at 9,315 ft. and a 200-ft. water cushion the well flowed at the rate of 4,000,000 cu. ft. of gas daily and the crew found 250 ft. of condensate in the drill pipe. The well did not show any normal oil but the condensate indicates the possible existence of a gas cap such as was found in the Northeast Coalinga field. In addition to the zone already tested at 9,330-60 ft., the company also cored a good-looking oil sand which was 15 ft. thick at 9,385-9,400 ft. Top of the Kreyenhagen was cored at 7,846 ft. and top of the Arroyo Hondo siltstone was logged at 9,053 ft. This would place the present zone at 9,330-60 ft. and at 9,385-9,400 ft. in lower Eocene, which is below the Gatchell interval.

The Cantua district of Fresno County, in which general area this well is located, has always been looked on with favor but, despite the fact that a number of wildcats have been drilled in the area, commercial production is yet to be found. About $5,000,000 has been expended in unsuccessful exploratory work and for lease rentals in this district during the past 8 years and it is quite probable that total expeditures would be about double this amount.

Current crude-oil production of leading California fields follows:

	Barrels
Wilmington	84,550
Midway-Sunset	59,150
Long Beach	46,200
Kettleman Hills	44,850
Ventura Avenue	33,325
Coalinga	26,550
Santa Fe Springs	26,450
Huntington Beach	24,325
Montebello	22,250
Santa Maria Valley	18,750

Montebello

One small well was completed in the Montebello extension and in the La Merced zone instead of being carried into the new 8-3 zone. This well was No. 1 Star Nurseries, a joint prospect of George F. Getty, Inc., and Pacific Western Oil Co. It was brought in flowing 150 bbl. of 35.9-gravity oil cutting 4 per cent and 417,000 cu. ft. of gas per day through a 33/64-in. bean from 7,603 ft. Perforations were made at 7,523-7,603 ft. Brookline Oil Co. recompleted No. 1 Drake at 7,710 ft. after finishing the hole with 96 ft. of 3¾-in. Securaloy drillable liner landed on bottom but no initial production is available as the crew is still adjusting the valve which was set at 7,636 ft. J. E. Mabee Co. attempted to complete No. 43 Monterey in both the new 8-3 zone and the 8-1 zone, but upon perforating the 7-in. at 7,515 ft. with four holes got a wet well. This well showed a capacity of 641 bbl. of oil and 1,171,000 cu. ft. of gas daily from the 8-3 zone but the operator estimated the well would receive a larger allowable if gas production from the 8-1 zone could be used during the potential test. Several wells are being deepened to the 8-3 zone in this field but it may be 2 weeks before operators get a good idea of what to expect. To date only one well has been completed in this new zone but it was also allowed to produce from upper zones and the potentiality of the 8-3 zone is not definitely known. It is, however, expected to prove commercially productive, although it will be limited in areal extent and restricted to the top of the structure.

Kettleman Hills

Standard Oil Co. closed a busy week in the Kettleman North Dome field by completing four new wells that showed an aggregate initial production of 5,170 bbl. of oil and 3,782,000 cu. ft. of gas. All four new wells are in Section 27-22-18 and all were finished in the Temblor zone. No. 41-27-Q was completed flowing 1,619 bbl. of 38.6-gravity oil and 853,000 cu. ft. of gas per day through a 40/64-in. bean from 8,115 ft. No. 63-27-Q flowed 1,596 bbl. of 38.5-gravity oil and 932,000 cu. ft. of gas through a 36/64-in. bean from 8,200 ft. No. 72-27-Q flowed 1,110 bbl. of 36.6-gravity oil and 950,000 cu. ft. of gas from 8,040 ft. through a 36/64-in. bean, and 85-27-Q flowed 845 bbl. of 35.9-gravity oil and 1,147,000 cu. ft. of gas through a 26/64-in. bean from an effective depth of 8,075 ft. The liner was cemented through perforations at 7,748 ft. and 7,897 ft. and production was brought in flowing through 7,864 ft. of 2½-in. tubing.

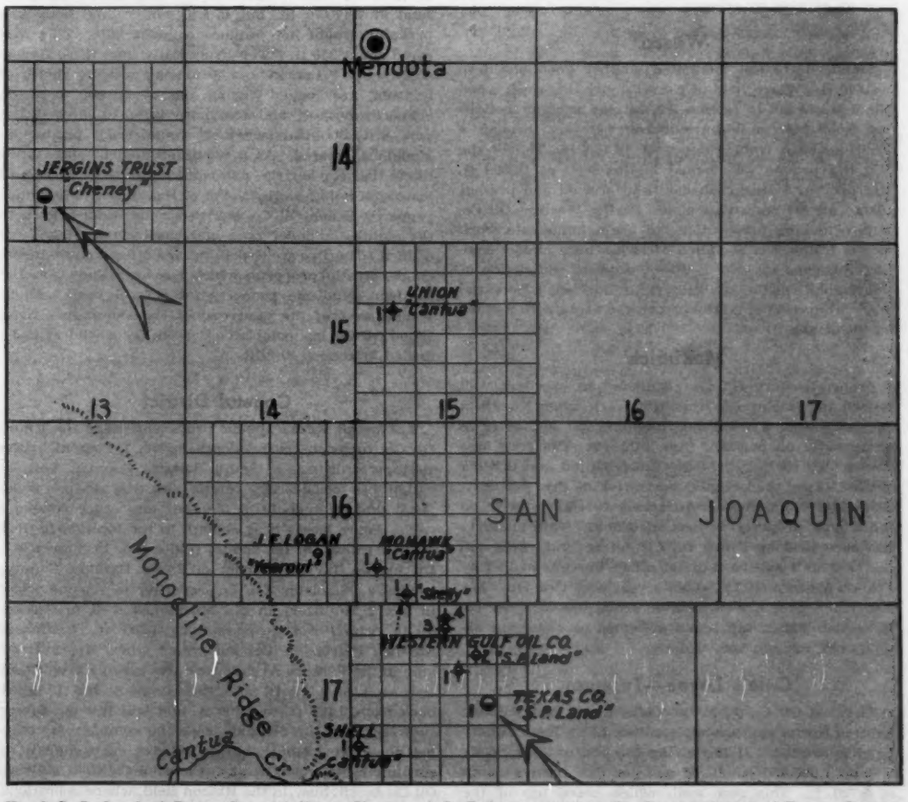
Standard Oil Co. also finished well No. 14-35-Q in Section 35-22-18 at 8,305 ft., but no gage has yet been taken. There are two wells headed down to the Eocene and both, No. 9 King of Union Oil Co. and well No. 321-29-J of Standard Oil Co. should be completed in less than 1 month.

Torrance

The Torrance field, which early last year was undergoing deep-zone exploitation, has now reached the point where there is a lone drilling well under way. Lebow-McNee Oil Co. completed No. 5-B Kettler, pumping 32 bbl. of 18.2-gravity oil cutting 5 per cent daily from an effective depth of 3,750 ft. This well, which was carried down to 5,246 ft. only to find the Del Amo zone all gray sand and shale with the exception of a 6-ft. streak of oil sand at 4,940-46 ft., was plugged back to completion depth. All wells in this field have reached the pumping stage and in the older section of the field progressive abandonments have been made from month to month. The Harbor City section of the Torrance field is also very quiet as there has not been a new well started in that section in several months.

Wilmington

The Continental Corp. (no relation to Continental Oil Co.) completed another well beneath the Los Angeles County flood-control channel in the Wilmington field this week when No. 5 L.A.C.F.C. was brought in flow-



No. 1 S. P. Land of Texas Co. and No. 1 Chenay of A. T. Jergins trust in the Cantua district of Fresno County, California, have both encountered oil sand that may possibly result in new discoveries respectively 1½ and 4½ miles north of the Coalinga fields. Eight dusters have been drilled in this area to date and over $5,000,000 expended for lease rentals and dry holes

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	May 5		April 28			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	64,997	9,285	144,217	185,791
Fuel oil	.....	.....	.....	.....	152,798	752,106
Diesel and gas oil	.....	.....	.....	.....	.....	163,501
Gasoline	148,563	21,223	.....	.....	900,404	1,013,805
Kerosene	.....	.....	.....	.....	.....	122,200
Foreign exports—						
Crude oil	415,088	59,298	155,011	22,144	4,495,909	5,137,861
Fuel oil	66,991	9,570	125,842	17,977	2,599,403	2,721,141
Diesel and gas oil	143,869	20,553	125,052	17,865	2,346,806	2,104,913
Gasoline	127,212	18,173	89,527	12,790	1,821,819	2,902,378
Kerosene	6,459	923	.....	.....	368,180	584,941
Lubricants	.....	.....	.....	.....	77,798	42,034
Coastwise-domestic—						
Crude oil	81,964	11,709	150,601	21,514	3,411,947	4,303,639
Fuel oil	117,887	16,841	335,342	47,906	5,365,425	3,439,875
Diesel and gas oil	40,375	5,768	20,597	2,942	1,081,654	906,851
Gasoline	155,410	22,201	442,068	63,153	5,484,606	5,028,672
Kerosene	.....	.....	22,511	3,216	187,555	165,555

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Fuel oil	.....	.....	.....	.....	67,840	61,281
Diesel and gas oil	.....	.....	.....	.....	281,260	69,550
Asphalt	.....	.....	.....	.....	174,268	140,426
Lubricants	.....	.....	3,545	506	11,151	8,133
Foreign exports—						
Crude oil	.....	.....	90,847	12,978	1,393,077	1,941,143
Fuel oil	44,928	6,418	84,709	12,101	576,903	885,259
Diesel and gas oil	7,094	1,013	97,742	13,963	965,585	724,132
Gasoline	84,504	12,072	87,388	12,484	966,658	1,100,126
Kerosene	.....	.....	19,009	2,716	195,531	303,112
Lubricants	.....	.....	.....	.....	153,691	178,256
Other finished oil	.....	.....	.....	.....	506	352
Coastwise-domestic—						
Fuel oil	55,212	7,887	60,142	8,592	2,061,882	2,108,070
Diesel and gas oil	26,388	3,770	18,361	2,623	407,254	345,444
Gasoline	68,294	9,756	76,763	10,966	2,344,711	2,305,814
Kerosene	10,165	1,452	5,490	784	211,696	238,013

ing 545 bbl. of clean 17.3-gravity oil per day from the Ranger zone with bottom of the hole at 3,035 ft. It was brought in flowing through a 34/64-in. bean and showed a flow pressure of 200 lb. The hole was started from a point west of the west bank of the flood-control channel but was later deviated beneath the bed of the channel by directional drilling. This company has locations staked for eight additional wells but present plans contemplate the use of one string of tools. In addition the company has one well under way and has finished rig foundation for No. 6, which will be the next well started. The flood-control channel is limited to Ranger zone production, as the upper and lower Terminal zones and the deep Ford zone are cut off by faulting. Union Pacific Railroad Co. is still pursuing an aggressive but conservative drilling program in the Wilmington field and either has derricks standing or locations made for 12 additional wells. The company is running seven strings of tools at present.

Wasco

Standard Oil Co. completed another good but deep well in the Wasco field of Kern County this week when No. 4 Mushrush in Section 7-27-24 was brought in flowing 3,590 bbl. of 36.1-gravity oil per day through a 32/64-in. bean from a depth of 13,135 ft. Top of the Rio Bravo zone was logged in this well at 13,093 ft. Rig for No. 5 Mushrush has been erected and present plans call for immediate spud. Pacific Western Oil Co. is also making preparations to begin immediate work as No. 1 Meyer in Section 7-27-24 has been almost completely rigged up. No. 1 Meyer, a recent completion of Continental Oil Co. at 13,139 ft., established a potential daily production of 2,789 bbl. per day along with 940,000 cu. ft. of gas.

McKittrick

Franco-Western Oil Co. completed an excellent well out on the McKittrick front this week when No. 18 in Section 8-30-22 was finished pumping 281 bbl. of clean 19.6-gravity oil per day from 2,224 ft. The crew was transferred to No. 19 in the same section and drilling started. Less than a mile northwest of this property, Otis Hoyt is making preparations to start a well on the Young property in Section 6-30-22. This property has been held by Union Oil Co. for several years and the first well will be a direct offset to wells drilled by Franco-Western Oil Co. about a year ago. Otis Hoyt has also taken over a well location from Standard Oil Co. in Section 5-30-22 but is not obligated to undertake actual work for another 90 days.

Cole's Levee—Tupman

Richfield Oil Corp., in the Coles Levee and Tupman fields of Kern County, completed No. 12-3-C Kern County Land in Section 3-31-25 flowing 645 bbl. of 32.9-gravity oil and 1,000,000 cu. ft. of gas per day from a depth of 9,790 ft. This new well, which cored top of the Stevens oil sand at 9,542 ft., was finished with a 7-in. water string cemented at 9,430 ft. and 440 ft. of 5½-in. liner carrying perforations at 9,569-9,652 ft. and at 9,677-9,787 ft. and 9,771 ft. of 2½-in. tubing. Richfield Oil Corp. is drilling ahead in 12 wells in this area and has five additional derricks standing and four more locations staked. Standard Oil Co. and Ohio Oil Co. have reduced drilling operations in the Coles Levee field to one well each and Union Oil Co. and Tide Water Associated Oil Co. have completely hung up tools for the time being. Richfield has so much undeveloped acreage that it is justified in proceeding with development work. If the company completed 50 wells in the Coles Levee and Tupman areas this year, it will add more than 5,000 bbl. to its daily allowable production even by conforming with curtailment.

Dominguez

Seaport Oil Co. appears to have defined the southwestern limits of production in the Dominguez field of Los Angeles Basin as the company has quit drilling at 7,500 ft. This outpost cored some good-looking oil sand at 7,446-70 ft., but it was not a solid body and probably would not produce commercially. This well cored about 350 ft. lower structurally than R. E. Havenstrite's No. 1 Larronde, a producing well. Evidence of faulting was logged during the course of work on Seaport's outpost and for more than 10 days it has appeared doubtful whether commercial production would be secured. As a result of this dry hole, it is likely that Havenstrite will continue to move westward instead of going south. North of Havenstrite's Larronde property, Union Oil Co. has two wells headed down to the eighth Callender zone and has location staked for a third. The two wells drilling are offset requirements on the Austin property, which has been known as the Gardena Syndicate property for several years. About 1 mile west of the west end of the Dominguez field, Wood Oil Co. has completed derrick for a wildcat to be drilled in Section 31-3-13.

Coastal District

Another 3 weeks should prove sufficient for Union Oil Co. to reach critical depth in No. 1 Pezzoni in the Betteravia district of Santa Barbara County. This location has considerable merit but the acreage is so large that it is doubtful whether any other company could secure leases near enough to the location to drill even if Union Oil Co. should find a new accumulation. Up in the Gaviota district of Santa Barbara County, Republic Petroleum Co. is preparing to resume work in No. 2 Hollister, an old abandoned well in Section 3-4-29, which was suspended at 3,200 ft. California Alliance Petroleum Co. got water when No. 2 Hartman in the Ventura Avenue field was given a production test at 9,180-9,412 ft. and the company has plugged back from 9,499 ft. to 8,200 ft. and will test out upper showings. On the Schmidt lease the company is rotating ahead at 7,240 ft. but is not yet deep enough to encounter the expected pay. Chanslor-Canfield Midway Oil Co. is still busy in the Rincon field, where operations have been resumed after a dormancy of several years. This company has completed several excellent wells in Rincon during the past year and plans call for four additional wells to be drilled in the near future. In the San Miguelito field of Ventura County, Continental Oil Co. is drilling ahead in No. 16 Grubb in Section 24-3-24 and has completed derrick for No. 17 Grubb. This work is in the extreme eastern end of the San Miguelito field and less than 1 mile separates the eastern end of San Miguelito and the western end of the Ventura Avenue field, indicating a possibility that the present San Miguelito field is the western extremity of the Ventura Avenue field.

San Joaquin Basin

Continental Oil Co. has staked location for a wildcat on the Jacalitos dome about 5 miles southwest of the west end of the Kettleman North Dome field and about 2 miles east of a dry hole abandoned several years ago by Superior Oil Co. Continental's new prospect is in Section 4-22-16, and it is the present intention to drill deep enough to reach the Temblor and Eocene providing subsurface conditions are favorable. This area has always been regarded with favor but work up to the present has not been productive of any important discoveries. Richfield Oil Corp., which is drilling a wildcat in the Tejon Ranch district and in the Wheeler Ridge district of Kern County in the extreme southern end of the San Joaquin Valley has not reached a depth sufficient to begin coring. The Wheeler Ridge wildcat may have to go to 11,000 ft. or more before being considered a conclusive test. In the Lost Hills area, General Petroleum Corp. has been conducting a series of tests on No. 1 K.P.C. in Section 16-26-22. This well is down 3,377 ft. and has a series of showings in the Mya zone, which has been found productive in other gas fields in the San Joaquin Basin.

Illinois Fields

(Continued from Page 295)

drill plug. Madden's No. 1 Sloan, NE SE SW Section 6-4n-5e, derrick up. Benedum & Trees, Inc.'s No. 1 Hagan, NW SE NE Section 28-4n-7e, drilling at 2,620 ft. Pure's No. 1 Staley Oil Co., C N½ SE SE Section 24-2n-7e, drilling at 2,887 ft.

In Clinton County Trumbell and others' No. 1 Ackman, SE SW SE Section 22-2n-3w, drilling at 1,698 ft. Snell & Goldschmidt's No. 1 Schaefer, SW NE NW Section 33-2n-3w, drilling at 2,140 ft.; same operators' No. 1 Peters, SW cor. SE SE Section 33-2n-4w, shut down for repairs at 2,540 ft.; Devonian lime top at 2,346 ft. Trumbell's No. 1 Dillman, NE SE NE Section 12-2n-5w, shut down at 860 ft. Miller's No. 1 Schmidt, C E½ W½ SE Section 35-2n-5w, shut down at 575 ft.

In Richland County Pure Oil Co.'s No. 1 Myers A, C W½ NW SW Section 7-4n-10e, drilling at 2,836 ft.; Cypress sand topped at 2,582 ft. Kingwood Oil Co.'s No. 1 Neff, SE SW NW Section 14-2n-7e, total depth 3,207 ft., acidized with 3,000 gal.; swabbed 7 bbl. of fluid per hour from pay at 3,161-68 ft.

In the Bartelso pool in Clinton County, P. Mosebach's No. 2 Robbins, SW SW SE Section 5-1n-3w, had Devonian lime pay at 2,416 ft., total depth 2,430 ft., acidized with 3,000 gal., pumped 150 bbl. of oil in 12 hours; testing.

In Wabash County Renfro's No. 1 Zimmerman, SW SE SE Section 36-1n-13w, derrick up. Leigerty's No. 1 Hahn, NE SW NW Section 8-1n-12w, drilling at 500 ft.

In Wayne County Pure Oil Co.'s No. 3 Billington, C E½ SE NE Section 27-1n-7e, top of St. Peter sand at 7,114 ft., drilling at 7,191 ft., with no showing of oil.

In Wabash County Mode & Bruce's No. 1 Seiler, NE SE NW Section 30-1s-12w, rig up. Pollock's No. 1 Cisel, NE NW SE Section 2-1n-12w, Cypress sand pay at 2,054 ft., drilling at 2,065 ft.

In Monroe County Cummings and others' No. 2 Boyer, SE SW SE Section 19-1s-10w, drilling at 1,910 ft.

In Edwards County Superior Oil Co.'s No. 1 Green, C N½ NE SW Section 19-2s-11e, McClosky lime at 3,119-32 ft., made a drill-stem test at 3,122-34 ft., open 1 hour, recovered 210 ft. of gas-cut mud and a trace of oil and water; drilling at 3,210 ft.

In White County Phillips Petroleum Co.'s No. 1 Garr, C W½ NW NW Section 31-4s-11e, Devonian lime top at 4,890 ft., drilling at 5,020 ft. Sun Oil Co.'s No. 1 Brown, C S½ SE NW Section 2-4s-9e, drilling at 3,110 ft.

In Randolph County Fisher's No. 1 Utchman, SW cor. NE NW Section 7-6s-5w, drilling at 1,860 ft.

In Hamilton County Ohio Oil Co.'s No. 1 Wilson, SW SW NE Section 6-6s-7e, Cypress sand top at 2,678 ft., drilling at 2,688 ft.

In Jackson County Trans-State Oil Co.'s No. 1 Burroughs, SW SE SW Section 6-7s-1w, drilling at 1,010 ft. Davis' No. 1 Michels, NE NW NW Section 18-9s-3w, Salem lime top at 1,045 ft., drilling at 1,210 ft.

Eastern Field Report

By STAFF CORRESPONDENT

Oriskany Gasser in Fayette County Has Big Initial Blow

PITTSBURGH, Pa., May 13.—The largest Oriskany gas well in Southwest Pennsylvania is being completed by the New Penn Development Co., William E. Snee and others in the test on the Piedmont Coal Co. lease on Chestnut Ridge in North Union Township, Fayette County.

Oriskany sand was topped at 7,042 ft. and the gas volume from the Onondaga chert beds was 1,800,000 cu. ft. a day. Between 7,042 and 7,051 ft. the volume increased to 2,600,000 cu. ft. a day with the first increase showing at 7,046 ft. At 7,054 ft. a large pay was struck which, before the tools were started out of the hole, was estimated at 25,000,000 cu. ft. a day. A gage, 10 minutes after the tools were cut, showed 13,000,000 cu. ft. a day which after 1 hour was down to 11,000,000 cu. ft. After 2 hours the volume was 8,000,000 cu. ft. a day either due to leveling off of the pressure or, more possibly, freezing at the sand as little or no hole was made after the gas was struck. The gas was then turned into the line, with a back pressure on the well, and feeding only about 2,000,000 cu. ft. a day so that the back pressure could be rocked up for test.

Compared with the discovery well, No. 1 Heyn, on this structure, the new test was 233 ft. lower subsea to the top of the Onondaga chert. The No. 1 Heyn is still producing from the Onondaga chert beds and has not reached the Oriskany. In three wells which were drilled through the Onondaga, No. 1 Indian Creek Coal, No. 1 Piedmont Coal, No. 1 J. H. Sorg, the Onondaga varied in thickness from 180 to 189 ft. In the new test, the Onondaga was 350 ft. thick, evidencing a fault at that point. The Oriskany sand was topped subsea at 4,864 ft.

SOUTHWEST PENNSYLVANIA

In South Buffalo Township, Armstrong County, W. A. Baker completed a small gas well on the James Bush farm at 2,943 ft. with a gage of only 10,000 cu. ft. a day from the Hundred-foot sand and the lower sands dry.

In Boggs Township, Armstrong County, Humphrey-Stone-McCall Corp. started drilling No. 2 R. W. Heffelfinger. In Kiskiminitas Township T. W. Phillips Gas & Oil Co. is drilling No. 1 R. M. Burns at 680 ft., and in South Bend Township No. 1 John Coulter at 1,853 ft. In Cowanshannock Township Peoples Natural Gas Co. is drilling No. 2 Lee Bell at 1,048 ft. and in Plum Creek Township is shut down at 3,592 ft. in the Frank Smith test. Here Equitable Gas Co. is shut down at 3,620 ft. in No. 1 Agnes Prugh, testing a show of gas in the Bradford sand. In Kittanning Township this company is drilling No. 1 Alice Boyer at 2,774 ft. and Edward Young is pulling casing to deepen No. 1 Hugh Blair.

In Red Bank Township John Wray and others are down 940 ft. in No. 1 O. B. Geist. In Valley Township this operator had reached 1,048 ft. in No. 1 H. M. Barker. In Plum Creek Township William McCollins made a location on the Add Reefer farm.

Indiana-Westmoreland

In Armstrong Township, Indiana County, Peoples Natural Gas Co. made a location on the Israel Miller farm. Here T. W. Phillips Gas & Oil Co. is drilling No. 1 Mary Henderson at 326 ft. In Brush Creek Township this company is down 1,399 ft. in No. 1 George Smolar; in Center Township, at 2,560 ft. in No. 1 R. & P. Coal Co.; in Washington Township, at 590 ft. in No. 1 E. B. Brandon, and at 763 ft. in No. 1 Louisa Black; in Young Township, at 1,743 ft. in No. 2 R. & P. Coal Co. In Washington Township, J. Cloid Rinn is deepening No. 1 Perdon heirs at 1,450 ft.

In Westmoreland County Apollo Gas Co. shut down on the D. M. Jones heirs in Allegheny Township in the Bradford sand with 178,000 cu. ft. a day, and is testing. In Bell Township Kiski Valley Gas Co. is spudding on the J. F. Wolford farm. In Washington Township Peoples Natural Gas Co. is drilling No. 1 Robert Townsend at 3,065 ft.

Greene-Fayette-Washington

In Greene Township, Greene County, Union and Monongahela Oil & Gas Co. deepened No. 1 Hartley and Ross to 2,971 ft. with Elizabeth sand at 2,916-20 ft. and 105,000 cu. ft. of gas a day at 2,916 ft. In this township Equitable Gas Co. is drilling No. 2 Hugh Keenan at 2,530 ft. In Monongahela Township Judson Bell and others had reached 1,329 ft. on the Samuel Black farm. In Morris Township the Hiawatha Oil Co. is drilling at 190 ft. on the Thomas Young heirs farm.

In Fayette County Greensboro Gas Co. is drilling at 2,364 ft. in the S. Kopsey test, with the Fifth sand topped at 2,348 ft. and a gage of 175,000 cu. ft. a day at 2,351 ft. On the Emmett Diamond farm this company is drilling at 1,915 ft. In German Township Wahler-Powers Oil & Gas Co. is drilling at 1,970 ft. in the Felix Valerio test.

In Washington County Equitable Gas Co. has started drilling on the R. Foster farm in Amwell Township. Here Clovis and others have run casing and are testing at 1,015 ft. in No. 1 Enoch Van Kirk farm. In South Franklin Township F. K. Fawcett and others have a rig standing for No. 2 Anna Phelan.

Deep Tests

On Chestnut Ridge in Fayette County, Peoples Natural Gas Co. is drilling at 1,517 ft. in No. 2 Piedmont Coal Co. in South Union Township. In Garrett County, Maryland, New Penn Development Co., William E. Snee, and others reached 6,350 ft. on the Humberson farm on the Accident dome, and then lost the hole at 4,680 ft. and are trying to drill through the bridge and get back to the old hole. In Stewart Township, Fayette County, Pennsylvania, these operators and E. G. Mueller are drilling at 7,163 ft. on the Gregg L. Neel farm on Laurel Ridge. The Onondaga is expected here about 7,500 ft. In Beaver County no hole was made in the test of John T. Galey and others on the James Tennis farm in South Beaver Township and it is unlikely the hole will carried deeper than its present depth of 6,823 ft., the Queenston.

WEST VIRGINIA

During the past week three small producers were completed in West Virginia. In Calhoun County O. D. Jones completed a 5-bbl. well on the M. W. Butler farm in Washington district at 2,197 ft., the Injun sand.

In Putnam County Roy & Smith completed a 3-bbl. well on the Carpenter heirs farm in Curry district at 900 ft., Salt sand.

In Ritchie County McBurney and others completed a second test on the M. A. and Ethel Perkins farm in Clay district at 1,130 ft., the Cow Run sand, and it is showing for 5 bbl. a day.

Gas Wells

Another large shallow-gas well was completed in Otter district, Clay County, by Pittsburgh & West Virginia Gas Co., which resulted in a fire and the well has not been shut in. This well, on the J. F. Wilson farm reached the Injun sand with a flow of about 15,000,000 cu. ft. a day. Equipment is being rushed in to control it.

In Calhoun County W. H. Bickel completed the test on the B. B. Belford farm in Center district in the Injun sand at 1,882 ft. and it gages 170,000 cu. ft. a day.

In Gilmer County McCall Drilling Co. completed a gas well on the Furr and Turner lease in Center district in Injun sand at 1,840 ft. and it is good for 200,000 cu. ft. a day. In DeKalb district this company drilled No. 3 Robert Napier through the Injun sand to 2,035-2,126 ft. and it was dry. In this district Jones & Norman completed a test on the J. A. Jeffries farm at 1,720 ft., with 53,000 cu. ft. a day before the shot at 1,700-12 ft. In Center district the Pittsburgh & West Virginia Gas Co. completed No. 7744 C. C. Davis at 2,147 ft. with 68,000 cu. ft. a day from the Maxton sand at 1,744-49 ft.

In Lincoln County G. H. Jackson and others deepened the Caleb Adkins test in Union district starting at 1,533 ft. and finishing in Brown shale at 3,256-3,528 ft. It gages 350,000 cu. ft. a day 72 hours after shot. In this district United Fuel Gas Co. deepened No. 4428 Edna Stowers starting at 2,358 ft. Brown shale lay at 3,290-3,636 ft. and the well gaged 80,000 cu. ft. a day after a shot.

In Jefferson district, Lincoln County, Russell Gas Co. deepened No. 4 James Cooper to 3,938 ft. with the Brown shale extending from 3,595 to 3,898 ft. and 160,000 cu. ft. of gas a day at 3,780 ft.

In Putnam County the Union Development Gas Co. completed No. 2 Millard Carpenter in Curry district at 935 ft., with the Salt sand topped at 805 ft.; gas 934-935 ft., and a gage of 212,000 cu. ft. a day and 2½ bbl. of oil. In Scott district Smith & Ellison completed a test on the R. G. and Martha Simms heirs at 1,600 ft. with the Big lime at 1,580 ft. and 180,000 cu. ft. of gas before the shot at 1,600 ft.

In Ritchie County L. E. and W. H. Mossor completed No. 3 Beulah P. Adams in Union district at 2,050 ft., the Injun sand, and it has a gas volume of 71,000 cu. ft. a day before shot.

Oriskany Gas Field

No completions were recorded in the Oriskany gas field in Kanawha County. In Poca district the final depth of the United Fuel Gas Co.'s No. 4864 W. J. Glass and others was 5,173 ft. and a final test of 3,385,000 cu. ft. of gas a day.

In this district the United Carbon Co. made a location for No. 830 O. B. Boggess and No. 831 Mary E. Carney and others. In Elk district E. L. Lusher made a location on the O. D. Hill farm, elevation 945 ft.

SOUTHEAST OHIO

In Southeast Ohio six wells were completed, of which the best was the test of the Gas Producing Co. of Ohio on the R. G. Pryor farm in Section 2, Harrison Township, Muskingum County. It had Clinton sand at 4,190-4,260 ft., and is a gas well gaging 2,000,000 cu. ft. a day.

In Monroe County E. A. Metcalf No. 2 and others completed No. 4 A. J. King, SW Section 22, Liberty Township, at 1,405 ft., Keener sand, and it produced 3 bbl. the first day after shot. In this quarter section Herbert W. Baker and others completed No. 4 Albert Pryor at 1,385 ft., the same formation which produced 3 bbl. the first day after shot.

In Noble County Kennonsburg Oil & Gas Co. completed No. 4 Eugene B. Ward, Section 2, Wayne Township, in Second Cow Run sand at 700 ft. It produced 20 bbl. the first day before shot. No. 3 same farm was drilled through this formation to 670 ft. and it was dry.

Michigan Field Report

By
OTTO C. PRESSPRICH

Dry Holes Equal Oil Wells In Past Week's Completions

SAGINAW, Mich., May 13.—Michigan oil operations added 11 new oil wells to the state's total last week while permits for new activity indicated a revival of natural-gas development. Operators were digesting a report of the state's geologist asserting that the current shrinkage in production is "not alarming"; that promising wildcat explorations are under way and that on the whole "prospects are good for the industry."

Initial production for the 11 new producers was slightly more than 1,200 bbl. a day, the Heath Township field of Allegan County accounting for half of it with four more wells. During the week 11 dry holes were abandoned, one location was abandoned temporarily, and two gas wells were completed in Montcalm County, their output totaling nearly 20,000,000 cu. ft. a day.

Pacing the list of new producers were Wiser Oil Co. and Howard E. Fowler's completions in Heath Township, each well having had an initial natural production of more than 250 bbl. a day. Other completions included a 100-bbl. well in the Allegan Salem field, a 25-bbl. well in Redding Township of Clare County, three wells of 206, 150 and 64-bbl. production in Ottawa's Tallmadge Township and small wells in Muskegon and Ogemaw counties, first new productions in those once highly productive fields in months.

Interest in wildcatting centered in the north central section of the state, particularly on the Virgil R. D. Kirkham and others' No. 1 Whaley in Section 24 of Clam Lake Township, Wexford County, 21n-9w, which was below 4,000 ft. and in McClanahan Oil Co.-Rowmor Corp.'s No. 1 Quist in Section 22 of Riverside Township, Missaukee County, 21n-7w, which was drilling at about 4,000 ft.

Eight natural-gas tests are among the 26 drilling permits issued by the state Conservation Department last week for activity in 18 townships of 12 counties. Three are slated for Clare and Montcalm counties. Nine of the oil-drilling permits are for wildcat tests, mostly in north and central areas.

The completions summary:

Allegan County

Heath Township (3n-14w): Initial production, naturally, was 270 bbl. a day from Howard E. Fowler's No. J-4 George Japink, C W½ W½ W½ Section 3, at a total depth of 1,462 ft. Fowler's No. 1 Japink, SW SE NW Section 3, rated 140 bbl. a day, naturally, from 1,521 ft., and Wiser Oil Co.'s No. 1 Harvey Immink, NW NW NE Section 3, was good for 15 bbl. a day, after an acid treatment, from a depth of 1,569 ft. Pace-setter was Wiser Oil Co.'s No. 1 John Klein, SE SW NE Section 4, rating 288 bbl., natural flow, from a depth of 1,473 ft., while W. Spencer Cook's No. 1 William Schalten, NE NE NE Section 4, was abandoned as a dry hole at a depth of 1,578 ft. Fletcher & Leman's No. 1 John Koivoord, NW SW SW Section 21, was dry and abandoned at 1,463 ft.

Salem Township (4n-13w): Lang & Lewis, Inc.'s No. 2 Adam Fleser, SE NW SW Section 15, produced 100 bbl. a day from a depth of 1,601 ft. after an acid treatment.

Barry County

Castleton Township (3n-7w): Strange Oil & Gas Co. completed No. 1 Ernest Golden, NW NE SW Section 31, as a dry hole, abandoning the test at 2,135 ft.

Hope Township (2n-9w): Dry and abandoned at 1,834 ft. was K. A. Fox and A. J. Fleming's No. 1 A. E. Owens, SE SE NE Section 35.

Clare County

Redding Township (19n-6w): Rowmor Corp. completed No. 1 William H. Silvernail, SW NW NE Section 28, at a depth of 3,899 ft., getting production, after acid treating, of 25 bbl. a day.

Clinton County

Greenbush Township (8n-2w): Ed J. VanCore's No. 1 Ed Fleagle, NW SW NW Section 15, was abandoned as a dry hole at 2,928 ft.

Monroe County

Summerfield Township (7s-6e): W. L. Harvey's No. 1 Ellen Brackett, NW NE NW Section 4, was dry and abandoned at 2,275 ft.

Kent County

Gaines Township (5n-11w): Sun Oil Co.'s No. 1 Anthony Huyser, NE SW NW Section 12, was abandoned dry at 2,280 ft.

Paris Township (6n-11w): H. C. Williams' No. 1 Charles B. Rathbun, NW SE SW Section 16, was dry and abandoned at 1,986 ft.

Walker Township (7n-12w): Smith Petroleum Co. and others abandoned location temporarily for No. 3 Thomas F. Molloy, SW SE SW Section 28.

Wyoming Township (6n-12w): The test dry at 1,820 ft., C. J. Neal abandoned No. 1 A. R. Heald, SW SW NE Section 8.

Montcalm County

Home Township (12n-6w): Belvidere Oil Co. and J. Drury's No. 1 John Huyck test also failed. The well in C N½ SW SW Section 31, was drilled to a depth of 3,499 ft.

Reynolds Township (12n-10w): Taggart Brothers, Inc.'s completed two good gas wells in Section 12, No. 16 E. M. Halladay, C SE, rating 6,800,000 cu. ft. daily from 1,114 ft. and No. 17 Underwood-Long-Turner, C NE, gaging 12,600,000 cu. ft. a day from a depth of 1,122 ft.

Muskegon County

Dalton Township (11n-16w): D. J. Shiffman and B. J. Skinner's No. 1 Ida Lund, NW NE NE Section 15, acid-treated, rated 20 bbl. a day. Total depth was 1,877 ft.

Ogemaw County

Ogemaw Township (22n-1e): M. J. Ingold's No. 4 Ed Stevenson, SE SW NE Section 24, was producing 5 bbl. a day, after acidizing, from 2,758 ft.

Ottawa County

Crockery Township (8n-15w): Twin Drilling Co. and others abandoned No. 1 Henderson, NW NE NW Section 7, as a dry hole at 2,235 ft.

Tallmadge Township (7n-13w): Gulf Refining Co.'s No. 3 A. E. Rapp, NE NE SW Section 23, completed at 1,878 ft., rated 64 bbl. a day, after getting acid treatment. Turner Petroleum Corp.'s No. 1 F. T. White, C N½ SW NE Section 23, completed at 1,880 ft., was good for 206 bbl. a day, initially, after acid treatment. Twin Drilling Co. rated No. B-4 Frank D. McKay, SW SW NW Section 24, at 100 bbl. a day, after acidizing, total depth being 1,902 ft.

Indiana Fields

(Continued from Page 295)

NW Section 7-7s-7w, total depth 1,032 ft. with 5½-in. casing set at 984 ft., rigging up to pump; Troy Refining Co. and others' No. 1 Mackey, NE cor. SW SE Section 31-7s-6w, drilling at 200 ft.; Damron Brothers' No. 1 Beckert, C NE SW Section 29-7s-6w, drilling below 800 ft.; Kentucky Natural Gas Co.'s No. 1 Parsley, NW SE NE Section 31-7s-6w, drilling below 800 ft.; Sturbois and others' No. 3 Boyd, SE NE NE Section 31-7s-6w, shut down at 1,021 ft. with the hole full of water.

Mogan, Kiefer and others' No. 1 Simms, SE SW SE Section 22-6s-7w, was spudded and shut down. Rogers and others' No. 1 Miller, SE cor. SW Section 32-6s-7w, sand at 1,000-02 ft. with slight stain of oil, total depth 1,060 ft., shut down for orders.

L. M. Steele and others' No. 1 Moyer, NW NW SE Section 30-7s-6w, sand at 895-900 ft., total depth. It gaged 1,300,000 cu. ft. of gas, casing set at 896 ft., drilling plug.

Walter Duncan and others' No. 1 Miller, NE SW NE Section 31-7s-6w, had sand at 914-25 ft. Water rose in the hole 750 ft. over night, with only a showing of oil; abandoned.

In Vanderburg County, Vanderburgh Oil Corp.'s No. 11 Hornby, SW NW NW Section 33-5s-10w, was drilling at 1,702 ft., Glen Dean sand was topped at 1,678 ft.

In Warrick County S. R. Travis and others' No. 1 Moyer, NW SW NW Section 13-5s-9w, was drilling at 1,842 ft. L. B. Jackson and others' No. 1 Schumacher, NE NW NW Section 34-3s-8w, spudded to 185 ft.

In Pike County George W. Miller's deep test, No. 1 Nixon, SE SW NE Section 14-3s-8w, was shut down at about 4,050 ft. W. H. Neub and others have machine in to start No. 1 Stone, SW NW NW Section 21-14-7w.

In Knox County Newton Pipe Line Co.'s No. 1 Like, Donation 171-2n-9w, drilling below 1,876 ft. M. I. T. Syndicate's No. 1 McHenry, C S½ SW NW Donation 214-5n-9w, shut down for orders at 3,680 ft. Sun Oil Co.'s No. 1 Utt, NW NW SE Donation 182-4n-9w, drilling at 2,366 ft.

In Daviess County Ben Ruble's No. 2 Walker, NE SW SE Section 4-2n-5w, shut down at 225 ft.

In Owen County Young and others' No. 1 Rice, NE NE NW Section 29-11n-3w, shut down for orders at 1,100 ft.

In Sullivan County Forest Oil Corp.'s No. 1 Riggs, NW NE SW Section 33-9n-9w, total depth 1,655 ft., salt water at 1,570 ft., underreaming 6-in. casing.

In Greene County Commonwealth Oil Co.'s No. 1 Tucker, NW cor. SE NE Section 16-6n-6w, McClosky lime at 540 ft., showing water, shut down at 600 ft. to make repairs. Schicker & Lyon's No. 1 Kiser, NW NW NW Section 4-7n-5w, Devonian lime top at 1,514 ft., drilling at 1,575 ft.

In Vigo County E. J. Renwaldt's No. 1 Hartman, SW NE NE Section 13-11n-9w, drilling at 197 ft.

In Fountain County Fountain Oil Co.'s No. 1 Glasscock, SE SE SW Section 2-18n-8w, drilling at 137 ft.

In Putnam County C. L. Williams' No. 1 Cooper, SW SW NE Section 10-13n-4w, fishing at 1,097 ft.

In Jay County Petroleum Development Corp.'s No. 1 Binegar, NE NE NW Section 29-24n-13e, total depth 1,855 ft., will run casing.

In Madison County Frontier Petroleum Co.'s No. 1, SW cor. NW SE Section 8-21n-8e, spudded.

In Randolph County high water was delaying C. Godwin and others' No. 1 St. Johns, C NE NE Section 8-21n-12e, which was getting ready to acidize. Seip & Seip's No. 1 Johnson, which the owners expect will make a good producer, was being cleaned out and made ready for acid treatment, total depth 1,074 ft.

In Newton County Vaughn & Smith's No. 1 Yacup, SW SE SE Section 33-32n-8w, was underreaming 6-in. casing to 130 ft.

Other operations in Jay, Whitley, Lagrange, Jasper, Starke, St. Joseph and Madison counties were shut down.

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well location, and county—	S.T.R.	Depth	Status
Union Oil, No. 1 Austin, Dominguez, Los Angeles	32- 3-13	6,671	sd. sh. drlg.
Union Oil, No. 2 Austin, Dominguez, Los Angeles	29- 3-13	1,983	sd. sh. drlg.
Union Oil, No. 14 Carson, Dominguez, Los Angeles	32- 3-13	535	sd. sh. drlg.
Shell Oil, No. 104 Reyes, Dominguez, Los Angeles	33- 3-13	4,451	sd. sh. drlg.
Havenstrite, R. E., No. 3 Larronde, Dominguez, L. A.	32- 3-13	7,090	sd. sh. drlg.
Seaport Oil, No. 1 Dasteel, Dominguez, Los Angeles	32- 3-13	7,330	sd. sh. drlg.
Apex Pet., No. 1 Hatfield, Rosecrans, Los Angeles	20- 3-13	9,214	P.B. 8,140
Mission Oil, No. 1 Pierce, Rosecrans, Los Angeles	20- 3-13	6,485	sd. sh. drlg.
So. Cal. Pet. Corp., No. 2 Slabaugh, Rosecrans, L. A.	20- 3-13	7,190	sd. sh. drlg.
St. Anthony Oil, No. 3 Gordon, Rosecrans, L. A.	19- 3-13	7,750	O.S. drlg.
Union Oil, No. 40 Rosecrans, Rosecrans, Los Angeles	19- 3-13	8,118	completing
Union Oil, No. 41 Rosecrans, Rosecrans, Los Angeles	19- 3-13	7,950	sd. sh. drlg.
Howard Oil, No. 2 Byrens, Rosecrans, Los Angeles	20- 3-13	7,206	O.S. drlg.
Royalty Service, No. 1 Cement, Rosecrans, L. Angeles	20- 3-13	9,148	pump 70 b.d.
Chicago Oil, No. 1 Founders, Rosecrans, L. Angeles	20- 3-13	6,451	sd. sh. drlg.
Thorley Oil, No. 1 Athens, Rosecrans, Los Angeles	7- 3-13	4,680	cleaning out
El Rey Oil, No. 1 Westmore, Athens, Los Angeles	2- 3-14	9,000	cmtd. 8,632
Federal Oil, No. 1 Smith, Inglewood, Los Angeles	7- 2-14	3,480	sd. sh. drlg.
Turf Oil, No. 1 H.R.A., Potrero, Los Angeles	34- 2-14	7,801	sd. sh. drlg.
Tide Water A. O., No. 13 Porter, Aliso Canyon, L. A.	27- 3-16	5,020	O.S. drlg.
Tide Water A. O., No. 15 Porter, Aliso Canyon, L. A.	27- 3-16	1,575	sd. sh. drlg.
Tide Water A. O., No. 22 Porter, Aliso Canyon, L. A.	27- 3-16	1,771	sd. sh. drlg.
Brit. Amer. Oil, No. 1 Perkins, Newhall, Los Angeles	14- 3-16	4,660	cleaning out
Creighton-Hammon Synd., No. 1 C-H, Newhall, L. A.	17- 3-16	191	sd. sh. drlg.
Barnsdall Oil, No. 9 R.S.F., Newhall, Los Angeles	27- 4-17	7,195	recmtd. 6,993
Barnsdall Oil, No. 10 R.S.F., Newhall, Los Angeles	26- 4-17	7,240	O.S. drlg.
Barnsdall Oil, No. 11 R.S.F., Newhall, Los Angeles	26- 4-17	1,161	sd. sh. drlg.
General Pet., No. 2 P.E., Wilmington, Los Angeles	35- 4-13	4,120	P.B. 3,705
Continental Corp., No. 3 L.A.C.F.C., Wilmington, L. A.	2- 5-13	2,351	sd. sh. drlg.
Continental Corp., No. 5 L.A.C.F.C., Wilmington, L. A.	2- 5-13	3,035	flow 540 b.d.
Hancock Oil, No. 27-A Harbor, Wilmington, L. A.	35- 4-13	4,050	recmtd. 3,455
Long Beach Dev., No. 12-W Harbor, Wilmington, L. A.	10- 5-13	3,913	recmtd. 3,725
M. A. K. Pet., No. 1 Harbor, Wilmington, Los Angeles	35- 4-13	3,423	completing
Pet. Midway, No. 2-G Kupfer, Wilmington, L. Angeles	35- 4-13	1,697	sd. sh. drlg.
Union Pacific, No. 135, Wilmington, Los Angeles	4- 5-13	5,610	recmtd. 5,153
Union Pacific, No. 136, Wilmington, Los Angeles	3- 5-13	3,940	completing
Union Pacific, No. 138, Wilmington, Los Angeles	3- 5-13	2,981	sd. sh. drlg.
Union Pacific, No. 139, Wilmington, Los Angeles	3- 5-13	4,915	recmtd. 4,894
Union Pacific, No. 140, Wilmington, Los Angeles	4- 5-13	2,550	sd. sh. drlg.
Union Pacific, No. 141, Wilmington, Los Angeles	3- 5-13	4,070	sd. sh. drlg.
Union Pacific, No. 23-E, Wilmington, Los Angeles	3- 5-13	3,765	P.B. 3,740
Union Pacific, No. 6-P.D., Wilmington, Los Angeles	3- 5-13	2,704	completing
Kern Oil, No. 30 Monterey, Montebello, Los Angeles	2- 2-12	7,820	completing
Kern Oil, No. 34 Monterey, Montebello, Los Angeles	2- 2-12	7,890	completing
Kern Oil, No. 5 Mulholland, Montebello, Los Angeles	2- 2-12	7,641	will deepen
Kern Oil, No. 3 Eggleston, Montebello, Los Angeles	2- 2-12	7,570	sd. sh. drlg.
Brookline Oil, No. 1 Drake, Montebello, Los Angeles	2- 2-12	7,710	completing
Chemical Oil, No. 1 Chemiculture, Montebello, L. A.	12- 2-12	3,993	sd. sh. drlg.
Columbia Oil, No. 1 Schelnik, Montebello, Los Angeles	3- 2-12	8,154	P.B. 7,706
Getty-Pac. West., No. 1 Star, Montebello, Los Angeles	10- 2-12	7,603	flow 150 b.d.
Herley-Kelly, Inc., No. 2 Masser, Montebello, L. A.	2- 2-12	7,710	flow 200 b.d.
Mabee Co., No. 43 Monterey, Montebello, Los Angeles	2- 2-12	7,888	tested wet
Mono Oil, No. 1 Foreman, Montebello, Los Angeles	2- 2-12	7,710	flow 250 b.d.
Montebello Oil, No. 2 Wallace, Montebello, L. Angeles	3- 2-12	7,361	sd. sh. drlg.
Montebello Reservoir Oil, No. 2 Mont., Mont., L. A.	2- 2-12	7,790	sd. sh. drlg.
Texas Co., No. 4 Wilcox, Montebello, Los Angeles	3- 2-12	7,476	D.P. stuck
United Mont. Oil, No. 3 Mont., Montebello, L. Angeles	11- 2-12	7,942	P.B. 7,610
Allied Pet., No. 34 Signal, Long Beach, Los Angeles	30- 4-12	10,490	O.S. drlg.
Convoy Oil, No. 1-A Signal, Long Beach, Los Angeles	24- 4-13	3,644	completing
Sunset Oil, No. 2 Whitney, Long Beach, Los Angeles	19- 4-12	3,620	P.B. 3,451
Dormax Oil, No. 2 Signal, Long Beach, Los Angeles	30- 4-12	4,211	P.B. 3,400
Exeter Oil, No. 3 Olson, Long Beach, Los Angeles	19- 4-12	4,597	cleaning out
Dunlap, D. D., No. 15 Signal, Long Beach, L. Angeles	19- 4-12	2,697	pump 20 b.d.
Cal-Mac Oil, No. 3 Oil Exchange, Long Beach, L. A.	19- 4-12	3,191	sd. sh. drlg.
Mitchell Oil, No. 1 R.R., Long Beach, Los Angeles	19- 4-12	2,693	sd. sh. drlg.
Tucker, H. M., No. 1 Heath, Buena Park, Orange	34- 3-11	5,890	sd. sh. drlg.
Sonwell Oil, No. 2 Coyote, East Coyote, Orange	13- 3-10	3,310	testing
Standard Oil, No. 69 Emery, West Coyote, Orange	24- 3-11	5,558	O.S. drlg.
Southwest Expl., No. 27 State, Hunt. Beach, Orange	10- 6-11	4,223	sd. sh. drlg.
Owens & Baker, No. 1 Newland, Hunt. Beach, Orange	36- 5-11	3,690	sd. sh. drlg.
Termo Co., No. 409-4 State, Huntington Beach, Orange	10- 6-11	4,719	rigging up
South Basin Oil, No. 93 H.B., Hunt. Beach, Orange	2- 6-11	7,590	redrlg. 3,381
United Oil, No. 1 Schimming, Stanton, Orange	25- 4-11	8,297	sd. sh. drlg.
Thompson, M. N., No. 1 Flat, Costa Mesa, Orange	9- 6-10	5,571	sd. sh. drlg.

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S.T.R.	Depth	Status
Cole, F. E., No. 1 Giacomini, Santa Maria, S. Barbara	24-10-35	4,806	sd. sh. drlg.
Union Oil, No. 1 Pezzoni, Betteravia, S. Barbara	33-10-35	1,674	sd. sh. drlg.
Republic Pet., No. 2 Hollisted, Gaviota, S. Barbara	36- 5-33	3,200	rigging up
Petrol Corp., No. 3-15 Tognazzini, Gato Ridge, S. B.	15- 8-32	1,997	sd. sh. drlg.
Texas Co., No. 139 Shiells, Shiells Canyon, Ventura	4- 3-19	2,874	P.B. 2,612
Rio Hondo Oil, No. 1 Cosby, Hopper Canyon, Ventura	14- 4-19	1,205	cleaning out
Merchants Pet., No. 8 Cochran, Sespe, Ventura	1- 4-20	2,392	sd. sh. drlg.
Continental Oil, No. 16 Grubb, San Miguelito, Ventura	24- 3-24	5,265	sd. sh. drlg.
C. C. M. Oil, No. 14-B Hobson, Rincon, Ventura	17- 3-24	4,355	flow. 25 b.d.
C. C. M. Oil, No. 35-B Hobson, Rincon, Ventura	16- 3-24	1,288	sd. sh. drlg.
C. C. M. Oil, No. 9-A Hobson, Rincon, Ventura	15- 3-24	6,515	cleaning out
Tide Water A. O., No. 7 V.L.W., Ventura Ave., Ventura	23- 3-23	7,140	will deepen
Tide Water A. O., No. 46 V.L.W., Ventura Ave., Vent.	24- 3-23	4,474	sd. sh. drlg.
Tide Water A. O., No. 17 McGonigle, Vent. Ave., Vent.	23- 3-23	8,660	sd. sh. drlg.
Tide Water A. O., No. 119 Lloyd, Ventura Ave., Vent.	27- 3-23	9,191	sd. sh. drlg.
Tide Water A. O., No. 18 Hartman, Vent. Ave., Vent.	22- 3-23	10,885	flow 788 b.d.
Tide Water A. O., No. 22 Hartman, Vent. Ave., Vent.	22- 3-23	7,470	sd. sh. drlg.
Tide Water A. O., No. 25 Hartman, Vent. Ave., Vent.	22- 3-23	6,655	sd. sh. drlg.
Shell Oil, No. 116 Taylor, Ventura Ave., Ventura	29- 3-23	4,273	sd. sh. drlg.
Shell Oil, No. 117 Taylor, Ventura Ave., Ventura	21- 3-23	6,891	sd. sh. drlg.
Shell Oil, No. 118 Taylor, Ventura Ave., Ventura	29- 3-23	6,990	sd. sh. drlg.
Cal. Alliance Pet., No. 2 Hartman, Ventura Ave., Vent.	22- 3-23	9,425	P.B. 8,200
Cal. Alliance Pet., No. 1 Schmidt, Ventura Ave., Vent.	21- 3-23	7,191	sd. sh. drlg.
British American Oil, No. 1 Barn., Vent. Ave., Vent.	22- 3-23	6,440	sd. sh. drlg.
British American Oil, No. 10 Hart, Vent. Ave., Vent.	21- 3-23	3,052	sd. sh. drlg.
Lloyd Corp., No. 5 Dabney, Ventura Ave., Ventura	24- 3-23	4,998	sd. sh. drlg.
Standard Oil, No. 1 Rideout, Delano gas field, Kern	34-24-23	2,460	will deepen
Trico O. & G., No. 3 Tulare, Delano gas field, Kern	27-24-23	2,543	testing
North Kern Oil, No. 1 Ranch, Fowler, Kern	16-25-22	1,176	sd. sh. drlg.
General Pet., No. 1 K.P.C., Lost Hills, Kern	16-26-22	3,420	sd. sh. drlg.
Franco-Western Oil, No. 18 Front, McKittrick, Kern	8-30-22	2,224	pump 275 b.d.
Franco-Western Oil, No. 19 Front, McKittrick, Kern	8-30-22	1,735	sd. sh. drlg.
Union Oil, No. 1 Weston, Belridge, Kern	13-29-21	7,298	sd. sh. drlg.
Belridge Oil, No. 10-1 fee, North Belridge, Kern	1-28-20	4,942	sd. sh. drlg.
Continental Oil, No. 4 Result, North Belridge, Kern	36-27-20	5,710	will deepen
Tide Water A. O., No. 33-21 Bel., No. Belridge, Kern	21-27-20	2,864	sd. sh. drlg.
Texas Co., No. 1 Theta, Shale Hills, Kern	12-28-19	3,395	redrlg. 3,338
Yeager, A. T., No. 3 Murdock, Mount Poso, Kern	34-27-28	1,680	idle
Ring Oil Co., No. 6 Rodgers, Mount Poso, Kern	29-26-28	1,855	wet; abd.
Vedder Pet., No. 31-2 Lambert, Mount Poso, Kern	31-26-28	2,759	gr. sd.; abd.
McDonald & Dearin, No. 5 Kernco, Kern Front, Kern	11-28-27	1,787	rig to pump
Dick & Dore Oil, No. 27 Kern, Kern River, Kern	34-28-28	632	pump 5 b.d.
Dick & Dore Oil, No. 30 Kern, Kern River, Kern	34-28-28	512	O.S. drlg.
Dick & Dore Oil, No. 31 Kern, Kern River, Kern	34-28-28	540	O.S. drlg.
Heim & Smith, No. 10-A Kern, Kern River, Kern	34-28-28	542	O.S. drlg.
Heim & Smith, No. 20 Kern, Kern River, Kern	34-28-28	291	sd. sh. drlg.
Heim & Smith, No. 21 Kern, Kern River, Kern	34-28-28	648	pump 5 b.d.
Richards Oil, No. 13 Davis, Kern River, Kern	8-29-28	1,015	O.S. drlg.
Sleeper Ridge Oil, No. 1 Ridge, Kern River, Kern	15-29-28	2,517	sd. sh. drlg.
Crestmont Oil, No. 3 Coffer, Round Mountain, Kern	8-28-29	1,003	sd. sh. drlg.
Grizzly Bear Oil, No. 4 Kelly, Round Mountain, Kern	6-28-29	1,815	cleaning out
Monterey Expl., No. 15 Shell-Duff, Edison, Kern	15-30-29	1,591	sd. sh. drlg.
Goodrum & Vincent, No. 5 S.P., Edison, Kern	31-29-30	302	sd. sh. drlg.
Morton, L. C., No. 1 Jewett, Arvin, Kern	23-31-29	6,489	sd. sh. drlg.
Western Gulf Oil, No. 45-B, KCL, Fruitvale, Kern	22-29-27	10,590	granite; abd.
Standard Oil, No. 4 Mushrush, Wasco, Kern	7-27-24	13,135	flow 3,590 b.d.
Continental Oil, No. 1 Meyer, Wasco, Kern	7-27-24	13,139	flow 2,790 b.d.
Continental Oil, No. 1 Community, Shafter, Kern	12-28-24	13,028	dry; abd.
Union Oil, No. 45-34, KCL, Rio Bravo, Kern	34-28-25	10,007	sd. sh. drlg.
Union Oil, No. 54-34, KCL, Rio Bravo, Kern	34-28-25	11,000	sd. sh. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
B. ck., bottom choke.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits.
Cd. or Crd., cored.
C.D., correct depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg., or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.S.T., drill-stem test.
D.P., drill pipe.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe-line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Recvd., recovered.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtrk. or St., sidetracked.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel-line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas, and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T. ck., top choke.
T.P., tubing pressure.
Tr., tract.
Tstd., tested.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.O.O., waiting on orders.
W.P., working pressure.
W.S.O., water shutoff.
W.S.O.O.K., water shutoff O.K.
W.S.R. or W.O.S.R., awaiting standard rig
Wtr., water.

Union Oil, No. 63-34, KCL, Rio Bravo, Kern	34-28-25	1,522	sd. sh. drlg.
Superior Oil, No. 3 Burner, Rio Bravo, Kern	27-28-25	9,990	sd. sh. drlg.
Superior Oil, No. 2 Weber, Rio Bravo, Kern	27-28-25	11,450	flow 1,580 b.d.
Superior Oil, No. 1 Merrill, Greeley, Kern	1-29-25	9,855	sd. sh. drlg.
Superior Oil, No. 1 Brandt, Greeley, Kern	28-29-26	6,070	sd. sh. drlg.
Standard Oil, No. 11-22, KCL, Greeley, Kern	18-29-26	8,397	sd. sh. drlg.
Standard Oil, No. 12-8, KCL, Greeley, Kern	7-29-26	11,360	O.S. drlg.
Standard Oil, No. 12-9, KCL, Greeley, Kern	7-29-26	6,077	sd. sh. drlg.
General Pet., No. 1 Oughton, Greeley, Kern	12-29-25	11,000	hd. sh. drlg.
General Pet., No. 2 Sullivan, Greeley, Kern	12-29-25	11,360	hd. sh. drlg.
Shell Oil, No. 76-29-A, KCL, Ten Section, Kern	29-30-26	8,240	flow 3,837 b.d.
Shell Oil, No. 38-20-A, KCL, Ten Section, Kern	20-30-26	6,060	sd. sh. drlg.
Shell Oil, No. 38-21-B, KCL, Ten Section, Kern	21-30-26	5,455	sd. sh. drlg.
Shell Oil, No. 41-31-B, KCL, Ten Section, Kern	31-30-26	7,670	sd. sh. drlg.
Shell Oil, No. 86-12-B, KCL, Strand, Kern	12-30-25	8,460	O.S. drlg.
Ohio Oil, No. 19-E, KCL, Canal, Kern	13-30-25	7,784	sd. sh. drlg.
Richfield Oil, No. 18-28-A, KCL, Tupman, Kern	28-30-25	4,792	sd. sh. drlg.
Richfield Oil, No. 38-28-A, KCL, Tupman, Kern	28-30-25	9,175	completing
Richfield Oil, No. 58-28-A, KCL, Tupman, Kern	28-30-25	6,330	sd. sh. drlg.
Richfield Oil, No. 78-30-A, KCL, Tupman, Kern	30-30-25	6,573	sd. sh. drlg.
Richfield Oil, No. 72-32-A, KCL, Tupman, Kern	32-30-25	1,425	cmtd. 1,405
Richfield Oil, No. 18-33-A, KCL, Tupman, Kern	33-30-25	6,993	sd. sh. drlg.
Richfield Oil, No. 34-33-A, KCL, Tupman, Kern	33-30-25	4,581	sd. sh. drlg.
Richfield Oil, No. 52-33-A, KCL, Tupman, Kern	33-30-25	5,376	sd. sh. drlg.
Richfield Oil, No. 54-33-A, KCL, Tupman, Kern	33-30-29	6,682	sd. sh. drlg.
Richfield Oil, No. 34-29-A, KCL, Tupman, Kern	29-30-25	3,995	sd. sh. drlg.
Richfield Oil, No. 276-29-A, KCL, Tupman, Kern	29-30-25	8,455	sd. sh. drlg.
Richfield Oil, No. 12-3-C, KCL, Cole's Levee, Kern	3-31-25	9,790	flow 650 b.d.
Richfield Oil, No. 54-4-B, KCL, Cole's Levee, Kern	4-31-25	7,272	sd. sh. drlg.
Standard Oil, No. 20-6, KCL, Cole's Levee, Kern	9-31-25	7,875	sd. sh. drlg.
Ohio Oil, No. 8-F, KCL, Cole's Levee, Kern	11-31-25	9,310	sd. sh. drlg.
Foster, R., No. 1 Hollingsworth, Midway-Sunset, Kern	22-32-23	1,690	sd. sh. drlg.
Signal Oil & Gas, No. 8 Kendon, Midway-Sunset, Kern	35-32-23	1,266	sd. sh. drlg.
Shell Oil, No. 45-9 B.V.A., Midway-Sunset, Kern	9-32-25	11,905	hd. sd. drlg.
McDonald, J., No. 20 Midway, Midway-Sunset, Kern	26-31-22	1,050	sd. sh. drlg.
Ohio Oil, No. 43-3-B, KCL, Paloma, Kern	3-32-26	10,361	fish D.P.
West. Gulf-Texas Co., No. 74-3-A, KCL, Paloma, Kern	3-32-26	10,700	tested wet
Oil Scout, Inc., No. 1 Tejon, Comanche Point, Kern	27-32-29	5,581	sd. sh. drlg.
Richfield Oil, No. 1 Ranch, Tejon Ranch, Kern	2-10-19	5,160	hd. sh. drlg.
Richfield Oil, No. 2 KCL, Wheeler Ridge, Kern	28-11-20	1,485	hd. sd. drlg.
Erickson & Swanson, No. 2 Gravender, Kingsb'g, Fr.	22-16-22	642	hd. sh. drlg.
Logan, J. E., No. 44 Yearout, Cantua, Fresno	26-16-14	3,290	sd. sh. drlg.
Jergins Trust, No. 1 Cheney, Panoche Creek, Fresno	29-14-13	9,030	sd. sh. drlg.
Texas Co., No. 1 S.P., Turk anticline, Fresno	23-17-15	10,116	wet gas
Shell Oil, No. 45-2, East Coalinga, Fresno	2-20-15	3,431	O.S. drlg.
Standard Oil, No. 53-19-B fee, NE. Coalinga, Fresno	19-19-16	8,161	hd. sd. drlg.
Standard Oil, No. 68-19-B fee, NE. Coalinga, Fresno	19-19-16	7,846	br. sh. drlg.
Standard Oil, No. 82-19-B fee, NE. Coalinga, Fresno	19-19-16	7,652	br. sh. drlg.
Amerada Pet., No. 1-20-B Ewing, NE. Coalinga, Fr.	20-19-16	8,203	O.S. drlg.
Texas Co., No. 5-20-B Kimberlin, NE. Coalinga, Fr.	20-19-16	8,170	O.S. drlg.
Superior Oil, No. 5 Husong, NE. Coalinga, Fresno	18-19-16	7,284	sd. sh. drlg.
Pure Oil, No. 44-30-B, NE. Coalinga, Fresno	30-19-16	7,197	br. sh. drlg.
Wilshire Oil, No. 62-30-B, NE. Coalinga, Fresno	30-19-16	7,550	br. sh. drlg.
Bandini Pet., No. 71-30-B, NE. Coalinga, Fresno	30-19-16	6,841	sd. sh. drlg.
Lytle, R. S., agent, No. 35-18-F, SE. Coalinga, Fresno	18-20-16	7,216	hd. sh. drlg.
Lytle, R. S., agent, No. 48-18-F, SE. Coalinga, Fresno	18-20-16	7,909	flow 2,264 b.d.
Lytle, R. S., agent, No. 68-18-F, SE. Coalinga, Fresno	18-20-16	7,521	O.S. drlg.
Univ. Cons'd Oil, No. 72-24-C, SE. Coalinga, Fresno	24-20-15	5,575	sd. sh. drlg.
Standard Oil, No. 68-13-C fee, SE. Coalinga, Fresno	13-20-15	609	sd. sh. drlg.
Standard Oil, No. 88-13-C fee, SE. Coalinga, Fresno	13-20-15	6,873	sd. sh. drlg.
Standard Oil, No. 22-17-F fee, SE. Coalinga, Fresno	17-20-16	5,866	sd. sh. drlg.
Standard Oil, No. 1-19-F fee, SE. Coalinga, Fresno	19-20-16	6,679	sd. sh. drlg.
Standard Oil, No. 22-19-F fee, SE. Coalinga, Fresno	19-20-16	7,825	flow 3,780 b.d.
Standard Oil, No. 33-19-F fee, SE. Coalinga, Fresno	19-20-16	7,800	flow 4,250 b.d.
Standard Oil, No. 42-19-F fee, SE. Coalinga, Fresno	19-20-16	7,900	flow 3,255 b.d.
Superior Oil, No. 3-B Cagle, SE. Coalinga, Fresno	6-20-16	7,260	sd. sh. drlg.
Union Oil, No. 9 King, Kettleman North Dome, Fresno	29-21-17	9,578	sd. sh. drlg.
K. N. D. A., No. 322-18-J, Kettleman N. Dome, Fresno	18-21-17	7,681	br. sh. drlg.
K. N. D. A., No. 23-20-J, Kettleman N. Dome, Fresno	20-21-17	4,994	sd. sh. drlg.
K. N. D. A., No. 4-16-Q, Kettleman N. Dome, Fresno	16-22-18	8,290	sd. sh. drlg.
K. N. D. A., No. 38-26-Q, Kettleman N. Dome, Kings	26-22-18	8,368	P.B. 7,724
K. N. D. A., No. 58-26-Q, Kettleman N. Dome, Kings	26-22-18	5,973	sd. sh. drlg.
Stand. Oil, No. 321-29-J, Kettleman N. Dome, Fresno	29-21-17	10,360	hd. sh. drlg.
Stand. Oil, No. 334-29-J, Kettleman N. Dome, Fresno	29-21-17	8,191	sd. sh. drlg.
Stand. Oil, No. 41-27-Q, Kettleman N. Dome, Kings	27-22-18	8,115	flow 1,619 b.d.
Stand. Oil, No. 63-27-Q, Kettleman N. Dome, Kings	27-22-18	8,200	flow 1,595 b.d.
Stand. Oil, No. 72-27-Q, Kettleman N. Dome, Kings	27-22-18	8,040	flow 1,115 b.d.
Stand. Oil, No. 85-27-Q, Kettleman N. Dome, Kings	27-22-18	8,075	flow 840 b.d.
Stand. Oil, No. 14-35-Q, Kettleman N. Dome, Kings	35-22-18	8,305	O.S. drlg.
Bristol Oil, No. 1 Smith, Kettleman S. Dome, Kings	35-24-19	8,054	bail water
Shell Oil, No. 1 Cohn, Tulare Lake, Kings	4-22-19	11,885	dry; abd.
Holly Dev., No. 1 Meherin, Huasna, San Luis Obispo	7-32-13	4,072	will abdn.
Cal. Fuel Oil, No. 3 Alberta, Huasna, San Luis Obispo	5-32-13	1,260	sd. sh. drlg.
Amerada Pet., No. 1 Carpenter, Rio Vista, Solano	20- 4-3	4,354	sd. sh. drlg.
Calaveras Co., No. 1 Elliott, Rio Vista, Solano	30- 4-3	4,055	sd. sh. drlg.
Tassajara Oil, No. 1 Rasmussen, Tassajara, Con. Costa	9- 2-1	9,777	P.B. 5,640

OKLAHOMA

Week Ended May 11

NORTHERN OKLAHOMA

Beckham County

Fred Coogan's No. 1 Kinchen, SE SE SE Sec. 4-9-25w. Dolo. 3,260 ft.; T.D. 3,714 ft.; P.B. 3,706 ft.; W.I.H.

Caddo County

Sinclair Prairie Oil Co.'s No. 1 Groman, SW NW NW Sec. 1-16-13w. Wlx. 9,179 ft.; sd. 10,074 ft.; cd. 10,871-75 ft.; N. S.; Arb. 10,922 ft.; T.D. 11,026 ft.; P.B. 9,370 ft.; blg. at 9,175 ft.; N.S.

Creek County

Indo Oil Co.'s No. 1 Slick, NW NW NW Sec. 1-16-9. S.O. 1,145-78 ft.; S.D. 2,300 ft.

Dewey County

Magnolia Pet. Co.'s No. 1 Fiekes. C SW SW Sec. 31-18-14w. D.S.T. rec. mud at 7,718 ft.; T.D. 9,475 ft.; pulled D.P. to cmt. off cavings.

Garfield County

Champlin Ref. Co.'s No. 1 Kunkel, C E½ SE NW Sec. 23-23-6w. Drlg. 3,010 ft.

Hughes County

J. W. Boydston's No. 1 Robstein, C NW SE Sec. 11-6-9. S.D. 1,014 ft.

Hall & Jordan's No. 1-A Barker, SE SE SW Sec. 3-8-9. S.O. in sd. 2,074 ft.; T. D. 2,109 ft.; est. 2 B.O.; S.D.

Morgan-Gulf Prod. Co.'s No. 1 Diamond, C E½ NW SE Sec. 33-9-9. T.D. 3,357 ft.; rng. Schlmb.

Kay County

Malarnee Oil Co.'s No. 1 Harris, C SW NE Sec. 14-25-1. Miss. 4,050 ft.; chat with S.O. 4,063-4,105 ft.; fsg. blr. 4,352 ft.

Kingfisher County

Olsen Drlg. Co.'s No. 1 Geis, C NE SW Sec. 15-18-9w; (O.W.D.D.). O.T.D. 8,507 ft.; blg. 9,356 ft.

Phillips Pet. Co.'s No. 1 Drape, C NW SE Sec. 30-18-5w. Layton 5,600 ft.; O.S.W. 6,146 ft.; lost circ. 6,681 ft.

Kiowa County

Frank Dillard et al's No. 1 Hobbs. SE SE NW Sec. 35-6-17w. Set 6⅝-in. 525 ft.; T.D. 690 ft.

Gled Oil Co.'s No. 1 McCurdy, NE cor. Sec. 18-6-17w. Drlg. 370 ft.

C. H. Marshall's No. 1 Pottchin, NE NW NW Sec. 28-7-18w. S.D. 1,940 ft.

Southwestern Okla. O. & G. Co.'s No. 2 Foltz, NW SE SE Sec. 10-6-18w. T.D. 1,130 ft.; S.D.; repairs.

Lincoln County

Fields & Nagle's No. 1 Alspaugh, SW SE NW Sec. 35-15-6. Drlg. 1,231 ft.

Logan County

Eason Oil Co.'s No. 1 Wells, NE NW NE Sec. 15-16-2w. Drlg. 1,300 ft.

Kerlyn Oil Co.'s No. 1 Cavanaugh, C W½ SW NW Sec. 1-15-4w. Drlg. 600 ft.

Kerlyn Oil Co.'s No. 1 Chitwood, NE NE SW Sec. 15-16-4w. Drlg. 4,540 ft.

McIntosh County

Phillips' No. 1 Blankenship, C SW NW Sec. 33-10-13. Hntn. 3,691 ft.; H.F.W.; drlg. 3,797 ft.

Muskogee County

R. Garrett's No. 1 Escoe. SW SW SE Sec. 16-13-17. S.D. 1,665 ft.; est. 2,000,000 cu. ft. gas.

Noble County

Alladdin Pet. Co.'s No. 1 Wentz, C W½ NE SW Sec. 11-22-2. Vla. 4,361 ft.; dolo. 4,393 ft.

Okfuskee County

Burke-Greis' No. 1 Dew, NE NE NE Sec. 9-12-9. Drlg. 1,130 ft.

McIntyre's No. 1 Richardson, NE SW NW Sec. 19-10-8. T.D. 3,558 ft.; to perf.

C. A. Yoakum's No. 1 Long, C SW SE Sec. 34-12-9. T.D. 3,826 ft.; drld. plug; rec. 10,000,000 cu. ft. gas.

C. A. Yoakum's No. 1-A Replogle-Johnson, NW NW NE Sec. 11-11-10. F. 135 bbl. in 20 hrs.; S.I. and F. 107 bbl. in 24 hrs.

Payne County

Comoll-Haskins' No. 1 Meyer, NW SE SE Sec. 17-17-6. Drlg. 1,580 ft.

Devonian Oil Co.'s No. 1-A Scott, SE SE NE Sec. 19-18-5. Drlg. 2,330 ft.

Pontotoc County

Crescent Oil Co.'s No. 2 Thompson, NE NW SW Sec. 29-3-4. T.D. 553 ft.

Patterson's No. 1 Isaacs, SW NW NE Sec. 3-4-4. Drlg. 2,039 ft.

Pottawatomie County

Alma Oil Co.'s No. 1 Harrington, NW SE NW Sec. 24-9-4. T.D. 4,510 ft.; P.B. 4,430 ft.; perf.; acd. and F. 250 B.O. in 24 hrs.; by hds.

J. W. Meazel's No. 1 Billington, SE NE NE Sec. 26-9-4. Wlx. 4,473 ft.; T.D. 4,508 ft.; acd.; F. into pits; S.I.

Simpson-Roodhouse's No. 1 Neal, NW NE SE Sec. 33-6-3. Drlg. 3,650 ft.

J. F. Smith's No. 1-A McKnown, SE SW NW Sec. 25-8-4. Drlg. 1,740 ft.

Taber et al's No. 1 McKinney, C E½ SE SW Sec. 11-10-4. Drlg. 3,310 ft.

Seminole County

Elm Oil et al's No. 1 Evans, SE SE NE Sec. 17-10-5. Drlg. 3,510 ft.

Murta et al's No. 1 Harber, C W¼ NE SE Sec. 4-10-6. Drlg. 2,755 ft.

Washita County

Continental Oil Co.'s No. 1 School ld., C NE Sec. 16-8-16w. Gr. wsh. 3,005 ft.; drlg. 6,063 ft.

SOUTHERN OKLAHOMA

Atoka County

Holly et al's No. 1 Johnson. NW NW NE Sec. 36-3s-13. S.D. 990 ft.

Kirksey's No. 1 Baskett, SW SE SE Sec. 7-3s-10e. Sdy. L. 470-80 ft.; S.O.; fsg. 490 ft.

Carter County

W. F. Turner's No. 1 Smith, NE SW SE Sec. 16-3s-1w. S.D. 3,640 ft.

Choctaw County

Clyde Ross et al's No. 1 Hardy, SE SE NW Sec. 21-7s-15. S.D. 1,950 ft.

Comanche County

W. I. Wynn's No. 1 Lowe, SE NW NW Sec. 7-1n-10w. D.D. 300 ft.; est. 15 B. O.P.D.

Cotton County

Selby O. & G. Co.'s No. 1 Abbott, SW SW NW Sec. 11-5s-12w. Arb. 3,250 ft.; drlg. 3,300 ft.; N.S.

Jefferson County

Fred Land et al's No. 1 Barrett, NE SE SE Sec. 14-6s-6w. Sd. 1,852 ft., S.O.; D. P. stk. at 1,100 ft.; T.D. 1,890 ft.; S.D.

Marshall County

Johnson et al's No. 1 Godfrey, SW SE NE Sec. 14-6s-6e. Vla. 2,627 ft.; S.S.O.; T.D. 4,582 ft.; P.B. 4,268 ft.; set pkrs. 3,694-3,808 ft.; acdz.

May Oil Corp.'s No. 1 Sacrea, SW NE SW Sec. 17-5-5. Sd. and S.G. 1,023-27 ft.; blk. sh. 1,033-37 ft.; gas sd. 1,120-ft.; est. 6,000,000 cu. ft. gas; T.D. 1,132 ft.; drld. plug and C.O. to bttm.; S.D.

Pure Oil's No. 1 Little, W½ NE SE Sec. 28-5s-7e. T.D. 5,640 ft.; F. 2,851 B.O. in 16½ hrs.

Stephens County

Edwin Bristow's No. 1 Damron, SE NW SW Sec. 25-2s-6w. T.D. 1,545 ft.; rng. tbg. to P.B. to 1,570 ft. and test.

Jackson's No. 1 Marshall, SE NE NE Sec. 1-1s-6w. T.D. 2,100 ft.; N.S.; to M.I. and D.D.

Tillman County

F. W. Johnson's No. 1 Longacre, NE NE SE Sec. 32-25-17w. T.D. 3,268 ft.; F. 170 B.O., 30 B.W.P.D.; gr. 42°; wash bridge and ran jeep; C.O. and prep to test.

KANSAS

Week Ended May 11 (Descriptions are East unless marked otherwise)

Barton County

Gulf et al's No. 1 Sander, CNL SW SE Sec. 30-13-16w. W.O.C. 215 ft.

Butler County

Ralph Wixon's No. 3 Bolin, SE SW NE Sec. 1-27-6. Drlg. 1,435 ft.

Cloud County

E. T. Lindsay et al's No. 1 LeBlanc, C S½ SW NW Sec. 35-6-1w. Drlg. 3,270 ft.

Cowley County

Atlantic and Sinclair's No. 1 Smith, SE SE NW Sec. 33-33-4. Tpka. 1,365 ft.; drlg. 2,785 ft.

Barwick & Sheridan's No. 1 Warren, C W½ NW NW Sec. 18-35-6. Drlg. 1,390 ft.

C. L. Carlock's No. 1 Starkey, CSL SE SE Sec. 21-30-7. Lans. 1,635 ft.; drlg. 3,030 ft.

Foster Oil Co.'s No. 2 Howard. E½ SW SW Sec. 8-34-4. Drlg. 1,790 ft.

Hartman & Brewer's No. 1 Falkingham CNL NW SE Sec. 22-30-4. Arb. 3,334-36 ft., T.D.; H.F.W.; S.D.O.

Hawkeye Oil Co.'s No. 1 Russell. CWL NW SE Sec. 19-30-5. Miss. 2,933 ft.; Simp. 3,369 ft.; S.S.O. 3,370 ft.; Arb. 3,377 ft.; T.D. 3,410 ft.; D.&A.

McKnab's No. 1 Sherwood, NE SE SW Sec. 4-35-5. Sdy. sh. 2,974-82 ft.; T.D. 3,048 ft., in Miss.; D.&A.

McKnab's No. 1 Snyder, C W½ NW NW Sec. 15-34-3. Drlg. 3,000 ft.

Markey & Mission's No. 1-A Hunt, SW SW NE Sec. 16-34-5. T.D. 1,756 ft.; killed gas; U.R. 1,756 ft.

Morgan Pet. Co.'s No. 1 Dunn. CSL SW NE Sec. 2-35-5. Miss. 3,511 ft.; Arb. 3,565-3,603 ft., T.D.; D.&A.

I. W. Murfin's No. 1 Jarvis, N½ SW NE Sec. 19-31-5. R.U.

E. B. Shawver's No. 1-B Widener, C S½ SE NW Sec. 11-30-4. Miss. 2,825-40 ft.; T.D. 3,021 ft.; ran 7-in. lnr. at 3,025 ft.; S.D.

Earl Wakefield's No. 1-A Dunn, C W½ SE NE Sec. 3-35-5. Drlg. 2,315 ft.

Dickinson County

Midland Oil Co.'s No. 1 Haines, SE SW SW Sec. 23-16-4. S.D. 1,235 ft.

Douglas County

Kerlyn Oil Co.'s No. 1 Wise, C SE SW Sec. 28-12-20. T.D. 580 ft.; skdd. rig; drlg. 1,080 ft.

Ellis County

Gulf et al's No. 1 Sander, CWL SW SE Sec. 30-13-16w. Drlg. 2,325 ft.

Ellsworth County

Aylward Prod. Co.'s No. 1 Haska. CEL SE SE Sec. 6-16-10w. W.O.C. 225 ft.

Moore's No. 1 Little, C S½ SE NE Sec. 30-16-10w. Drlg. 1,440 ft.

Pryor & Lockhart's No. 1 Stratman, C W½ NW NW Sec. 1-17-10w. Lans. 2,937 ft.; Arb. 3,278 ft.; S.O. 3,280 ft.; rng. csg.

Sharon Drlg. Co.'s No. 1 Norotny, C N½ NW NE Sec. 32-16-10w. Drlg. 1,385 ft.

Greenwood County

Ashlock et al's No. 2-A Lindemood, NE NW SW Sec. 7-25-13. Drlg. 835 ft.

A. A. Hinze et al's No. 1 Hester, NW SW NE Sec. 1-22-12. S.D. 510 ft.

C. L. Sheedy et al's No. 1 Hook. NW SW NW Sec. 4-22-10. Miss. 2,333-69 ft.; P. est. 5 B.O.P.D.; T.D. 2,460 ft.; acd.; D.&A.

Johnson County

McCain et al's No. 1 Doan, CEL NW SE Sec. 34-12-22. S.D. 1,433 ft.

Kingman County

Gaddis et al's No. 1-A Shannon, CEL SE SW Sec. 11-27-10w. Drlg. 890 ft.

Leavenworth County

Wamhoff & Lebsack's No. 1 Moduska, C SE NE Sec. 36-8-20. Sg. sd. 975-90 ft.; S.O.

McPherson County

Aladdin Pet. Co.'s No. 1 Bitikofer, CNL NE NW Sec. 1-20-1w. Lans. 2,315 ft.: Miss. 2,885 ft.; est. 5,000,000 cu. ft. gas at 2,910 ft.; spray oil.

H. & M. Drlg. Co.'s No. 1 Swenson, S½ SW NE Sec. 9-18-4w. Drlg. 2,430 ft.

Marion County

Harrington & Lorieaux's No. 1 Belton SE SE NE Sec. 30-17-4. Miss. 2,398 ft.; pay 2,412-15 ft., T.D.; 2,400 ft. O.I.H.; W.O.C. 2,404 ft.

H. H. Royer's No. 1 Kroch, NE NE NW Sec. 28-18-4. O.T.D. 2,452 ft.; T.D. 2,464 ft.; in Miss.; N.S.

Pawnee County

Lauck & Moncrief's No. 1 Gilkison, CEL NE SW Sec. 21-22-16w. Drlg. 3,100 ft.

Phillips County

Cities Service Oil Co.'s No. 1 Ray, NE NW SE Sec. 32-5-20w. Loc.

Reno County

Dutton et al's No. 1 Green, SE SE SE Sec. 8-23-4w. S.D. 2,622 ft.

Westgate-Greenland's No. 1 Schlickau, C N½ SE SW Sec. 8-25-4w. K.C. 2,760 ft.; Miss. 3,512 ft.; N.S.; R.U.S.T.

Rice County

Derby Oil Co.'s No. 1 Monroe, CWL NW SE Sec. 26-18-9w. Drlg. 2,910 ft.

F. G. Holl's No. 1 Wilkens, NW NW NE Sec. 28-18-6w. Miss. 3,447 ft.; T.D. 3,514 ft.; W.O.C. 3,285 ft.

J. N. Kaufman's No. 1 Hayes, CNL NE NE Sec. 25-21-7w. Lans. 2,930-65 ft.; S.O.O.Y. 3,490-94 ft.

Rooks County

Cities Service Oil Co.'s No. 1 Hansen, SE SE NW Sec. 15-6-19w. Loc.

Seaney & Clampitt's No. 1 Morrison, CSL SW NE Sec. 32-10-17w. Loc.

Wakefield et al's No. 1 Diehle, C N½ NW NW Sec. 4-9-17w. Fsg. 630 ft.

Russell County

Cities Service Oil Co.'s No. 1 Rochester, SE SE NE Sec. 11-13-15w. B.R.R.

Haynest et al's No. 1 Driscoll, CNL SE SW Sec. 30-15-11w. Drlg. 90 ft.

I. W. Murfin et al's No. 1 St. Aubyan, CSL SW SE Sec. 1-15-15w. Tpka. 2,710 ft.; Lans. 3,000 ft.; drlg. 3,077 ft.

Simpson Oil's No. 1 Rush, CWL NW SW Sec. 33-14-14w. Drlg. 2,725 ft.

Sedgwick County

G. A. Fuller's No. 1 Stilt, CSL SE NE Sec. 21-27-1w. S.S.O. 2,678 ft.; incr. at 2,798-2,806 ft.; P. 2 B.O. and 20 B.W. P.H.; pot. 23 B.O.; S.D.O.

Schermerhorn Oil Co.'s No. 1 Sanders, NE NW SE Sec. 2-25-2. Miss. 2,835 ft.; S.O.; T.D. 2,887 ft.

Trego County

W. N. Bartlett's No. 1 Phannenstell, C SE NW Sec. 30-13 25w. Lans. 3,690 ft.; Arb. 4,650-84 ft., T.D.; D.&A.

Woodson County

Cooper's No. 1 Sowder. SE SE NW Sec. 31-25-14. Drlg. 457 ft.

MISSOURI

Holt County

Brin & Nathan's No. 1 Decker, C NW NW Sec. 1-61-38w. Running csg. to 1,056 ft. and preparing to resume drilling.

Livingston County

Chillicothe Syndicate's No. 1 Linton, C W½ SE Sec. 15-56-25w. Spudded.

Lewis County

F. W. Miller's No. 1 Hatfield, SW NW Sec. 34-60-7e. Spudded.

Schuyler County

T. E. Baldwin's No. 2 Johnson, SW NE NE Sec. 21-65-15w. Drlg. 645 ft.

NEBRASKA

Morrill County

C. L. Price's No. 1 Bonner, SE cor. Sec. 10-23-49w. S.D. 3,875 ft.

Richardson County

Pawnee Royalty Co.'s No. 1 Boice, CSL N½ NE NE Sec. 18-1n-16e. O.W.D.D.; Vla. 2,911 ft.; Arbuckle 3,268-3,300 ft., T.D.; to plug back to Hunton.

Pawnee Royalty Co.'s No. 1 Bucholz, C NW SW Sec. 17-1n-16e. T.D. 2,232 ft. in Hunton; est. 400 to 500 bbl. daily.

Uhri Oil Co.'s No. 1 Ogle, NE NW SE Sec. 9-1n-14e. Drlg. below 700 ft.

Uhri Oil Co.'s No. 1 Stauffer, SW SW NE Sec. 22-1n-13e. Drlg. 600 ft.

ARKANSAS

Arkansas County

Coker Oil Corp.'s No. 4 H. H. and H. C. Cabe, 100 ft. E of No. 2, Sec. 5-10s-21w. Set 8¼-in. csg. 20 ft.; W.O.C.

Clark County

J. H. Coker and J. P. Grieves' No. 1 C. McClellan, 330 ft. NW cor. NW SE Sec. 11-20-21. T.D. 1,326 ft.; repr. drk.

W. S. King's No. 1 N. Ross, 640 ft. S. 359 ft. W. NE cor. S½ SW Sec. 3-10-21. T.D. 2,158 ft.; S.D.

W. P. Wilson's No. 1 Hamilton & Mathews, 50 ft. W, C SE NE Sec. 31-10s-20w. S.D. high wtr. 1,622 ft.

Columbia County

Barnsdall Oil Co.'s No. 1 El Dorado & Wesson R. R. Co., C NW SW Sec. 5-19-18. R.U.

Hunt Oil Co.'s No. 1 E. Garner, C N½ NE NE Sec. 25-17-20, and N½ NW NW Sec. 11-20-21. T.D. 1,150 ft.; S.D.; re-9⅝-in. csg. 2,150 ft.; drlg. sdy. sh. 6,-916 ft.

J. K. Mahoney's No. 3 Emma Riley, C SE SW Sec. 11-18-19. Set 16-in. csg. 138 ft.; T. por. Smkvr. L. 8,163 ft.; rmg. 8,185 ft.

Southwood Oil Co.'s No. 2 H. C. Couch, C S½ SW SW and S½ SE SW Sec. 23-17-20. Set 16-in. csg. 120 ft.; drlg. 859 ft.

Standard Oil Co.'s No. 1-C Gunnels unit, 660 ft. N, 595 ft. E, SW cor. SE NW Sec. 20-17-19. Set 9⅝-in. csg. 2,173 ft.; drlg. sdy. sh. 5,529 ft.

Standard Oil Co.'s No. 2-B Longino, Sec. 19-17-19. Drlg. sd.&sh. 6,340 ft.

Tide Water Asso. Oil Co. and Seaboard Oil Co.'s No. 1 Talley, C SE NW Sec. 14-18-19. M.I. rig.

Faulkner County

Cato Oil Co., Inc.'s No. 1 R. R. Harrell, 330 ft. SE cor. SE SW Sec. 35-4n-12w. T.D. 2,438 ft.; U.R. csg. and set 7-in. csg. 2,370 ft.; bailing to test.

Lafayette County

Atlantic Ref. Co.'s No. 1 Bodcaw Lbr. Co., Sec. 29-17-23. Set 16-in. csg. 341 ft.; set 9⅝-in. 4,222 ft.; cd. 7,308-16 ft.; S.O.; drlg. ahd. 7,716 ft.

J. & J. Oil Co.'s No. 1 J. E. Barnes, 345 ft. W, 615 ft. N, SE cor. Sec. 4-16-24. Spdg.

Lonoke County

Lunnon Howell & Ford's No. 1 City of Cabot, C NE Lot 1, Blk. 6, Sec. 18-4n-9w. Set 4⅝-in. csg. 878 ft.; drlg. 1,-084 ft.; (cor.).

J. F. Russell's No. 1 J. T. Gunter, 440 ft. N, 577 ft. W, SE cor. Sec. 17-5n-10w. Drld. sd. S.S.O. 2,231-45 ft.: S.D. 2,312 ft.

Miller County

F. W. Burford's No. 1 Ritchie, 330 ft. N, 1,650 ft. W, SE cor. Sec. 7-20-27. Drlg. sh.&L. 3,419 ft.

K. E. Jennings and J. J. Oil Co.'s No. 1 H. T. Wood, 520 ft. S, 255 ft. W, NE cor. Sec. 33-18-28. Cg. 2,289 ft.

Red Iron Drlg. Co.'s No. 1 Philyaw, 330 ft. NW cor. NE SE Sec. 7-17-26. M.I.M.

Standard Oil Co. of La.'s No. 1 W. P. Sturgis, 660 ft. S and W, C Sec. 1-17-27. Set 9⅝-in. csg. 2,497 ft.; T. Bknr. 8,948 ft.; T. Smkvr. L. 8,965 ft.; T.D. 8,984 ft.; stk. D.S. at 2,647 ft. while coming out of hole to core; C.O.

Nevada County

Velma Oil Co.'s No. 1 T. M. Bemis, 330 ft. NW cor. NW NE Sec. 23-10s-22w. Set 10-in. csg. 66 ft.; S.D. 68 ft.

Ouachita County

Sam Richardson & Co., Inc.'s No. 10 J. Goodwin, 200 ft. N, 330 ft. W, SE cor. NE SW Sec. 32-15-15. Drlg. L.&sh. 2,-455 ft.

Pulaski County

Coker Oil Corp.'s No. 1 Huffman, 330 ft. NW cor. NW SW SW Sec. 29-4n-11w. T.D. 1,763 ft.; W.O.

Saline County

A. W. Givens No. 1 Williams, 375 ft. S, 420 ft. E, NW cor. NE NE Sec. 18-3s-15w. Set 6-in. csg. 500 ft.; S.D. 550 ft.

Tedford Drlg. Co. et al's No. 1 Cunningham, C SW NE Sec. 31-3s-15w. R.U.

Sevier County

R. A. McArthur's No. 1 Bell est., 20 ft. SE cor. SE SW Sec. 29-9s-32w. S.D. 785 ft.

St. Francis County

D. T. Hargraves et al's No. 1 J. T. Wellford, 400 ft. N, 300 ft. W, SE cor. NE NE Sec. 29-4n-1w. R.U.

Union County

Berg & Laney's No. 1 Cutrer, 150 ft. N, 660 ft. W, SE cor. NW SW Sec. 21-17-14. Cd. 2,727-28 ft.; rec. 7-in. por. sd.; cd. 2,728-35 ft.; rec. 7½ ft. soft por. sd., salty taste; drlg. by fish 350 ft.; T.D. 3,370 ft.; set 5⅞-in. csg. 2,771 ft.; perf. 2,702-05 ft.; bailed down 1,000 ft. and tstd. S.W.; recmtd. perf. 2,601-03 ft. and reperf. 2,572-74 ft.; T.D. 2,575 ft.; changing to smaller rig.

Marine Oil Co.'s No. 1-A W. B. Thompson, 250 ft. S, 400 ft. E, NW cor. SW SE Sec. 3-18-13. Tstd. oil 3,005-25 ft., and mud 3,203-23 ft.; set 7-in. csg. 3,-556 ft.; swbd. 50 B.O. and S.S. S.W.; W.O.S.R. 3,590 ft.

LOUISIANA

NORTH LOUISIANA

Bienville Parish

Ark. La. Gas Co.'s No. 1-A Carter, 1,372 ft. N, 90 ft. E, SW cor. Sec. 12-16-10. Set 13⅜-in. csg. 149 ft.; 9⅝-in. csg. 1,238 ft.; set 5½-in. csg. 5,275 ft.; perfg.

Bossier Parish

Premier Dev. Co.'s No. 1 Mehaffey, 150 ft. S, 1,980 ft. W, NE cor. Sec. 27-19-11. Set 12½-in. csg. 155 ft.; W.O.C.

Triangle Drlg. Co.'s No. 2 Chatman, 1,-977 ft. E, 1,995 ft. S, NW cor. Sec. 18-17-11. Set 5½-in. csg. 3,120 ft.; reset csg.; tstd. S.W.; cmtg. off 3,130 ft.

J. A. Whitson's No. 1 Bellevue Ld. Co., 170 ft. E, 365 ft. N, C Sec. 27-20-11. R.U.

Caddo Parish

J. W. Bailey's No. 1 Ark. Fuel Oil Co., Sec. 1-20-16. R.U.

L. M. Calhoun's No. 1 Caddo O. & M. Co., Sec. 12-20-16. Set 6⅝-in. csg. 1,-391 ft.

O. F. Cauble's No. 1 Darnell, Sec. 17-22-16. Set 10-in. csg. 80 ft.; sd. 3,002-10 ft. and 3,012-52 ft.; S.O.; T.D. 3,204 ft.; set 5⅞-in. csg.; W.O.C.

J. M. Conner's No. 1 Williams, C NW NW Sec. 14-15-15. Drlg. L.&sh. 4,550 ft.

Davidson & Brown's No. 1 Wells, Sec. 10-21-15. Set 8-in. csg. 1,597 ft.; acd. with 4,000 gal.; pmpd.; S.O. 1,789 ft.; T.D. 3,000 ft.; set 5½-in. csg.; acd. with 3,-000 gal.; tstd. S.W.; S.O.; pld. csg. and P.B. 2,006 ft.; tstd. S.W.; P.B. 1,875 ft. and tstd. S.W.; pmpd. S.W.; S.D.; and W.O.

J. P. Griffin's No. 2 Muslow, Sec. 26-21-16. Set 10-in. csg. 40 ft.; cg. 2,227 ft.

O. K. Hickman's No. 1 Lavine, Sec. 12-20-16. Set 10-in. csg. 60 ft.; drlg. 163 ft.

D. L. Johnson's No. 1 Single Terry, Sec 10-20-16. Set 6⅝-in. csg. 1,469 ft.; P.B. 1,570 ft.; W.O.C.; O.T.D. 1,614 ft.

Kendricks & Bashaw's No. 1 Huckaby-Parker, Sec. 14-22-16. T.D. 1,616 ft S.D.

C. H. Lyons et al's No. 1 Ferris, 750 ft. N, 30 ft. E, SW cor. Sec. 35-18-14. Set 9-in. csg. 1,213 ft.; drlg. 2,517 ft.

P. N. McCullough's No. 1 Rudderdorf, Sec. 11-20-16. Set 5½-in. csg. 1,406 ft.

Magnolia Pet. Co.'s No. 21 Dean-Thigpen, Sec. 6-20-15. Set 10¾-in. csg. 41 ft.; rmg. csg. 1,360 ft.

R. L. Milam's No. 1 Bickham, Sec. 28-21-15. Set 10-in. csg. 40 ft.; cg. 1,356 ft.

N. W. Pannill's No. 1 Muslow, Sec. 32-21-15. Drlg. sh. 367 ft.

Providence Oil Co.'s No. 6 Bostwick, Sec 13-22-16. Set 7-in. csg. 2,624 ft.; W.O.C.

Sklar Oil Co.'s No. 2 Hobbs, Sec. 21-21-15. R.U.

Stanolind O. & G. Co.'s No. 132 Dillon hrs., Sec. 13-21-15. Set 5½-in. csg. 1,-519 ft.; tstg. 1,680 ft.

Stanolind O. & G. Co.'s No. 2 Dorian, Sec. 18-21-15. Drlg. ch. rk. 1,542 ft.

Southern O. & G. Co.'s No. 3 Muslow, Sec. 5-20-15. Drlg. 219 ft.

J. G. Strahan's No. 2-B Stiles, Sec. 32-21-16. Set 5-in. csg. 2,250 ft.

L. L. Sugar's No. 6 Hart, Sec. 22-21-16. Set 6⅝-in. csg. 1,021 ft.; W.O.S.R.

Jack Terrell's No. 1 Welch, Sec. 3-20-16 Set 4½-in. csg. 1,434 ft.; T.D. 1,540 ft. acd. 4,000 gal.; tstd. S.O. and S.W.

Texas Co.'s No. 10 A. Herndon, Sec. 14-21-15. R.U.

Texas Co.'s No. 10 J. F. Herndon, Sec. 14-21-15. Set 6⅝-in. csg. 1,484 ft.; tstg. 1,672 ft.

Texas Co.'s No. 5 Lake Front Oil Co., Sec. 8-20-15. Set 6⅝-in. csg. 1,318 ft.; tstg. 1,491 ft.

Texas Co.'s No. 1 La. Co. fee, Sec. 1-20-16. Drlg. 50 ft.

Sloan Wells' No. 1 Stiles, 3,734 ft. N 1,706 ft. E, SW cor. Sec. 32-21-16. Set 10-in. csg. 340 ft.; cor. T.D. 1,073 ft.; set 6⅝-in. csg. 1,070 ft.; S.D.

Ivan W. Wright's No. 1 Moore, Sec. 1 20-16. Set 10-in. csg. 40 ft.; T.D. 1,560 ft.; S.D.

John W. Wall's No. 1 Fee, Sec. 12-20-16. Set 6⅝-in. csg. 1,376 ft.; W.O.C.

Catahoula Parish

Continental Oil Co.'s No. 1 Tensas, C N½ SW SW Sec. 12-9-7e. Set 10¾-in. csg. 1,120 ft.; T.D. 7,002 ft.; S.D.

Claiborne Parish

Ohio Oil Co.'s No. 15 G. W. Taylor Acct. 1, 100 ft. S and W, C SE Sec. 15-23-8. Set 13⅜-in. csg. 980 ft.; drlg. L.&sh. 3,125 ft.

De Soto Parish

Foster & Smith's No. 1 McRae, 800 ft. S, 550 ft. W, C Sec. 5-12-16. Set 10-in. csg. 60 ft.; W.O.C.

Dewey Juan's No. 1 Frost Lbr. Ind., 600 ft. SE cor. SW¼ Sec. 14-22-3e. T D. 2,949 ft.; bailed down 2,300 ft.; S S.O.; tstd. S.S.O.&S.W.; cd. to 2,938 ft (cor.) and S.D. 3,255 ft.

Watts O. & G. Co.'s No. 1 Frank Gro Co., 338 ft. S, 450 ft. W, NE cor. NW Sec. 35-12-11. Br. sd. 2,503-2,634 ft.; set 6-in. csg. 2,503 ft.; T.D. 2,634 ft.; ran lnr.; bttm. 320 ft.; perf.

Grant Parish

J. E. Granstaff's No. 2 Morrison, 2,100 ft. S, 400 ft. W, NE cor. NW SW Sec. 10-9n-1e. Set 10-in. csg. 41 ft.; set 6-in. csg. 1,535 ft.; bttm. 6 ft. perfd.; W.O.S.R.

John Pundt's No. 1 Reed est., 805 ft. S, 429 ft. W, NE cor. NW SW Sec. 10-7n-3w. Set 16-in. csg. 182 ft.; T.D. 1,-447 ft.; reported S.G. 1,250-80 ft.; drlg. sh. 2,443 ft.

La Salle Parish

O. K. Allen, Jr., et al's No. 1 Breedlove C SW NE Sec. 32-11-3e. R.U.

Ark. Fuel Oil Co.'s No. 1-A Goodpine, C SW SW Sec. 7-20-3e. T. Wlx. 1,620 ft.; oil sds. 2,209-26 ft., 2,234-42 ft., and 2,362-84 ft.; S.W. sd. 2,384-95 ft.; set 7-in. csg. 2,404 ft.; perf. 2,378-80 ft.; S.G., sqzd., and perf. 2,236-40 ft.; tstd. mud cut with oil and salty taste; sqzd. and retstg.

Ark. Fuel Oil Co. and Placid Oil Co.'s No.

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2 Goodpine, C SW NW Sec. 18-10-3e. Set 7-in. csg. 2,430 ft.; W.O.C. oil sds. 2,232-42 ft., 2,260-71 ft., and 2,378-82 ft.; perf. 2,221-24 ft.; no test; sqzd. and reperfg.

Atlantic Ref. Co.'s No. 2-A Goodpine, 75 ft. N, C SW NE Sec. 28-9-2e. Set 10¾-in. csg. 243 ft.; cd. S.W. sd. in Olla zone; drlg. sh.&sd. 3,165 ft.

Coon & Ezell's No. 1 Herring, 300 ft. W, 150 ft. S, NE SE SW Sec. 32-11-3. Drlg. 57 ft.

E. F. Neely's No. 1 Lizendy, 330 ft. NW cor. NE NE Sec. 19-10-3. T. Wlx. 1,600 ft.; br. sh. 2,227-41 ft.; cd. oil sd.; T.D. 2,380 ft.; W.O.

Placid Oil Co.'s No. 3 Goodpine, C SE SE Sec. 12-10-2e. T. Wlx. 1,590 ft.; oil sds. 2,200-13 ft., 2,222-45 ft., and 2,363-75 ft.; set 7-in. csg. 2,405 ft.; perf. 2,352 ft. and tstd. S.O., G., and S.W.; sqzd. and reperf. 2,248-51 ft. and 2,195-98 ft. and sqzd. cmt. in formation.

Placid Oil Co.'s No. 4 Goodpine, C NE NW Sec. 18-20-3e. T. Wlx. 1,620 ft.; cd. oil sd. 2,238-48 ft. and 2,259-66 ft.; gas sd. 2,379-82 ft.; oil sd. 2,382-86 ft.; rmg. 2,404 ft.

Placid Oil Co.'s No. 10 La. Cent. Lbr. Co., C NW SW Sec. 7-10n-3e. Took side-wall cores 3,880 ft.; set csg. 2,650 ft.; perf. 2,224-28 ft.; D.S.T.; ⅛-in. T. ck. and ¼-in. B. ck.; flwd. est. 75 B. P.D., 30% oil, 70% S.W.; sqzd. and reperf. 2,206-12 ft. and flwd. 3 to 4 B. P.H.; open tbg.; T.D. 2,212 ft.; swbd. and sqzd. and perf. 2,206-15 ft.; swbd. 7 to 8 B.F.P.H., 20% S.W.; did not sqze.; perf. 2,186-92 ft. and tstd. S.O. and S.W.; W.O. 3,914 ft.

Placid Oil Co.'s No. 12 La. Central, C NE SE Sec. 13-10-2. Set 7-in. csg. 2,382 ft.; T. Wlx. 1,599 ft.; oil sds. 2,174-95 ft., 2,213-20 ft., 2,330-33 ft.; 2,243-48 ft., 2,293-2,312 ft., and 2,353-82 ft.; S.W. sd. 2,382-88 ft.; perf. 2,232-38 ft. and tstd. 150 B.F.P.D., 50% S.W.; sqzd. and perf. 2,206-08 ft.; sqzd. off; W.O.C.

Placid Oil Co.'s No. 13 La. Central, C SW NE Sec. 13-10-2. Oil sd. 2,259-63 ft.; S.W. sd. 2,409-19 ft.; W.O.

Placid Oil Co.'s No. 14 La. Central, C SE SE Sec. 13-10-2. Set 10¾-in. csg. 105 ft.

Fred Stovall, Tr.'s No. 1 Russell, 200 ft. NW cor. SE SE Sec. 25-10-1e. R.U.

Natchitoches Parish

J. E. Watts' No. 1 Tanner est., 330 ft. SW cor. NW¼ Sec. 18-10-10. Set 10-in. csg. 60 ft.; W.O.C.

Red River Parish

J. E. Parham's No. 1 Haynes, 2,192 ft. N, 1,000 ft. E, SW cor. Sec. 20-13-10. 10-in. csg. 135 ft.; set 6-in. csg. 1,060 ft.; tstg.

Sabine Parish

A. R. Chestnut's No. 1 Logan, 330 ft. SW cor. NW NW Sec. 26-10-13. Set 7-in. csg. 1,885 ft.; tstd. dry 1,970 ft.; S.D.; W.O.

Odell Henson's No. 1 Frost Lbr. Ind., 660 ft. SE cor. Sec. 22-9-13. Reported S.O. 3,146-48 ft.; set 6-in. csg. 3,115 ft.; tstd. S.O. and S.W. 3,148 ft.; dpnd. and tstd. S.O. and S.W. 3,196 ft.; T.D. 3,228 ft.; acd. 3,000 gal.; flwd. 225 bbl. in 16 hrs.; ¼-in. ck.; T.P. 375 lb.; C. P. 650 lb.; S.W. broke in and well went dead; W.O.S.R.

Geo. L. Pace's No. 5 Logan Oil Co., 330 ft. SW cor. SW NW Sec. 26-10-13. R.U.

Roy Raines' No. 1 Carter, NW NW Sec. 27-9-11. S.D. 810 ft.

Sam Sklar's No. 1 First Natl. Bnk., 330 ft. SW cor. NW SW Sec. 29-8-12. Set 10-in. csg. 63 ft.; drlg. sh. 1,793 ft.

Sutton Zwolle Oil Co.'s No. 3 Sabine, i.-650 ft. S, 660 ft. E, NW cor. NE Sec. 23-7-14. S.G. 3,538-60 ft.; conditioning mud.

J. E. Watts' No. 1 Patterson, 660 ft. SE cor. NE Sec. 33-10-11. Drlg. sh. 840 ft.

Union Parish

Memphis Nat. Gas Co.'s No. 4 Frost Lbr. Ind., Sec. 14-22-3. Set 12½-in. csg. 150 ft.; 6-in. csg. 2,155 ft.; W.O.C.

Memphis Nat. Gas Co.'s No. 8 Lankford, Sec. 2-21-3. Set 8-in. csg. 810 ft.

Nemours Corp.'s No. 1 Hollis, Sec. 10-21-3. Set 9-in. csg. 846 ft.; W.O.C.

Webster Parish

Hunt Oil Co.'s No. 1 Robt. Scott, C SE SE Sec. 19-21-9. Set 9⅝-in. csg. 5,604 ft.; drlg. hd. sh. 7,923 ft.

Hunt Oil Co.'s No. 6 E. L. Stewart, 200 ft. NW C NE SE Sec. 30-21-10. Drlg. hd. L. 5,360 ft.

Midstates Oil Corp.'s No. 1 Brenner-Beamsley unit, 100 ft. SE cor. SW SE Sec. 20-21-10. Set 9⅝-in. csg. 5,617 ft: D sd. 8,488-8,508 ft. (oil); drlg. sh. 8,586 ft.

West Carroll Parish

Hunter Co.'s No. 1 E. Lee unit, 1,980 ft. W, 660 ft. S, NE cor. Sec. 27-20-10. T.D. 100 ft.; mixing mud.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co.'s No. 1 Boudoin, Sec. 64-12s-3e. 13⅜-in. csg. 1,776 ft.; T.D. 11,100 ft.; W.O.C.

Anse La Butte—St. Martin Parish

Glassell & Glassell's No. 2-A Breaux, Sec. 117-9s-5e. Drlg. sd.&sh. 4,010 ft.

Glassell & Glassell's No. 1 Patin, Sec. 121-9s-5e. Drlg. sh. 2,610 ft.

Stanolind O. & G. Co.'s No. 1 L. D. Bergeron, Sec. 88-9s-5e. Loc.

Bancroft—Becauregard Parish

Republic Prod. Co.'s No. 11 Lutcher Moore, Sec. 11-6s-13w. T.D. 7,525 ft.; tstg.

Barataria—Jefferson Parish

California Oil Co.'s No. 1 La. Truck & Orange Co., Sec. 15-15s-23e. Loc.

California Oil Co.'s No. 1 Danciger-State, Sec. 2-16s-23e. Loc.

California Oil Co.'s No. 1 Zeringue-Community, Sec. 2-16s-23e. T.D. 8,275 ft., S.W. sd.; T. sd. 8,250 ft.; sdtrkd. 4,403 ft.; T.D. 8,329 ft.; made sqz. job; re-perf. csg.; prep. to P.B. and sdtrk.

Geo. Conover's No. 1 Conover Community, Sec. 22-15s-23e. Loc.

Fohs Oil Co.'s No. 1 Conzelman, Sec. 22-15s-23e. Loc.

Bateman Lake—St. Mary Parish

Texas Co.'s No. 3 Wax Bayou, Sec. 21-16s-12e. 7-in. csg. 10,984 ft.; T.D. 11,127 ft.; rec. 275 ft. of oil 10,879-10,900 ft.; perf. csg. 10,895-10,905 ft.; I.P. 129 B.P.D.; 10/64-in. ck.

Baton Rouge—East Baton Rouge Parish

Wm. Helis' No. 6-A L. S. U., Sec. 67-7s-1w. R.U.

Wm. Helis' No. 5-B Duplantier, Sec. 70-7s-1w. T.D. 6,502 ft.; 7-in. csg. 6,484 ft. I.P. 267 B.P.D.; 10/64-in. ck.

Wm. Helis' No. 9 Nelson, Sec. 36-7s-1w. Loc.

Sugarfield Oil Co.'s No. 3 Community, Sec. 45-7s-1e. 10¾-in. csg. 1,315 ft.

Bayou Blue—Iberville Parish

T. G. Markley and Crosby Drlg. Co.'s No. 1 Baiste, Sec. 74-9s-10e. Cd. O.S. 1,723-51 ft.; 7-in. csg. 1,723 ft.; comp.; no ga.

Superior Oil Co.'s No. 1 E. B. Schwing, Sec. 73-9s-10e. Drlg. sh. 8,210 ft.

Superior Oil Co.'s No. 3 Schwing Lbr. Co., Sec. 74-9s-10e. Loc.

Bayou Choctaw—Iberville Parish

Standard Oil Co.'s No. 12 Wilbert, Sec. 53-9s-11e. T.D. 5,452 ft.; sdtrkd.; T.D. 3,826 ft.; perf. csg. 3,750-70 ft.; I.P. 287 B.P.D.; ¼-in. ck.

Standard Oil Co. of La.'s No. 2 Cypress Sec. 28-8s-11e. 10¾-in csg 2,250 ft.; T.D. 8,609 ft.; S.D.; high wtr.

Bayou des Glaises—Iberville Parish

Humble O. & R. Co.'s No. 3-B Wilberts & Sons, Sec. 78-8s-8e. R.U.

Bayou Pigeon—Iberia Parish

Plymouth Oil Co.'s No. 1 Leblanc, Sec. 13-12s-10e. Loc.

Bayou des Allemands—La Fourche Parish

Amerada Pet. Corp.'s No. 4 Gheens Realty, Sec. 56-15s-20e. Loc.

Bay St. Elaine—Terrebonne Parish

Jefferson Lake Sulphur Co.'s No. 1 Salt Dome Royalties, Sec. 8-22s-18e. Loc.

Caillou Island—Terrebonne Parish

Texas Co.'s No. 66 State, Sec. 17-23s-20e. T. salt 6,351 ft.; drlg. salt 7,941 ft.

Texas Co.'s No. 68 State, Sec. 17-23s-20e. Drlg. 125 ft.

Cameron Meadows—Cameron Parish

Magnolia Pet. Co.'s No. 28 Cameron Meadows, Sec. 21-14s-13w. Drlg. sh. 3,120 ft.

Chacahoula—La Fourche Parish

Sun Oil Co.'s No. 2 Cypress, Sec. 75-15s-15e. 13⅜-in. csg. 1,815 ft.

Sun Oil Co.'s No. 8 Dibert, Stark & Brown Cypress Co., Sec. 70-15s-15e. 10¾-in. csg. 1,831 ft.; drlg. sh. 5,200 ft.

Chalkley Field—Cameron Parish

Humble O. & R. Co.'s No. 8-A Hanszen Sec. 9-12s-6w. Drlg. sd. 8,790 ft.

Shell Oil Co., Inc.'s No. 1 Coastal Club. Cg. sh. 9,819 ft.

Shell Oil Co., Inc.'s No. 7-A Hanzen Sec. 20-12s-6w. T.D. 8,943 ft.; 5-in. csg. 8,943 ft.

Choneyville—Rapides Parish

Amerada Pet. Corp.'s No. 9 Weil, Sec. 54-1s-2e. Drlg. sh. 4,387 ft.

S. W. Richardson's No. 12 Weil, Sec. 53-1s-2e. T.D. 5,797 ft.; 5½-in. csg. 5,796 ft.

Darrow—Ascension Parish

Humble O. & R. Co.'s No. 3-B Community, Sec. 47-10s-2e. T.D. 9,259 ft.; P.B.; sdtrkd.; drlg. sh. 8,628 ft.

Humble O. & R. Co.'s No. 29 Community, Sec. 30-10s-2e. Loc.

Kiva Oil Co.'s No. 1 Duplessis, Sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co.'s No. 11 State, Sec. 32-21s-16e 10¾-in. csg. 1,751 ft.; drlg. sh.&L. 6,057 ft.

Texas Co.'s No. 24 State, Sec. 5-22s-16e. Loc.

Edgerly—Calcasieu Parish

Emerson Oil Corp.'s No. 3 Stanolind fee Sec. 28-9s-11w. Sdtrkd.; T.D. 3,680 ft.; 5½-in. csg. 3,665 ft.; trying to sdtrk.

Eola—Avoyelles Parish

Amerada Pet. Corp.'s No. 3 Avoyelles. Sec. 5-2s-3e. T.D. 8,619 ft.; fsg.

Amerada Pet. Corp.'s No. 1 Sam Cerami, Sec. 6-2s-3e. Perf. csg. 8,491-8,562 ft.; I.P. 602 bbl.; 21½ hrs.; ¼-in. ck.

Amerada Pet. Corp.'s No. 4 Sam Cerami, Sec. 6-2s-3e. R.U.

Amerada Pet. Corp.'s No. 3 Irion, Sec. 6-2s-3e. Cg. sd. 8,570 ft.

Amerada Pet. Corp.'s No. 1 R. Tubre, Sec. 31-1s-3e. T.D. 8,570 ft.; perf. csg. 8,540-72 ft.; I.P. 666 B.P.D.; ¼-in. ck.

Hany Bass & Lake's No. 1 Ritchie Grocery, Sec. 3-1s-3e. T.D. 8,582 ft.; 5½-in. csg. 8,580 ft.

Gulf Oil Corp.'s No. 3 Mouliere, Sec. 1-2s-2e. Drlg. sh. 7,126 ft.

Lester A. Lemoine's No. 1 fee, Sec. 41-1s-3e. Loc.

Geo. Lilly's No. 2 Dent, Sec. 1-2s-2e. Loc.

S. W. Richardson's No. 12 Haas Inv. Co., Sec. 8-2s-3e. Drlg. sh. 7,239 ft.

Erath—Vermilion Parish

Strake Pet. Co., Inc.'s No. 1 V. L. Caldwell, Sec. 41-13s-4e. Drlg. 2,508 ft.

Fausse Point—Iberia Parish

Sun Oil Co.'s No. 2 Planters Lbr. Co., Sec. 27-11s-8e. 10¾-in. csg. 1,436 ft.

Texas Co.'s No. 7 State, Sec. 35-11s-8e. T. salt 7,001 ft.; T.D. 7,005 ft.; P.B.; sdtrkd.; drlg. sh. 5,206 ft.

Garden Island—Plaquemines Parish

Texas Co.'s No. 44 State, Sec. 49-23s-33e. Cg. sd. 5,040 ft.

Gibson—Terrebonne Parish

Shell Oil Co., Inc.'s No. 8 Pelican, Sec. 35-17s-15e. T.D. 11,440 ft.

Gillis—Calcasieu Parish

Fohs Oil Co.'s No. 2-A M. P. Erwin. Sec. 14-9s-8w. T.D. 7,236 ft.; 5½-in. csg. 7,236 ft.; perf. csg. 7,179-87 ft.

Union Sulphur Co.'s No. 9 Kaufman, Sec. 7-9s-7w. T.D. 7,149 ft.; P.B.; sdtrkd.

Union Sulphur Co.'s No. 3 McIver, Sec. 14-9s-8w. Loc. abd.

Golden Meadow—La Fourche Parish

Bennett O. & R. Co.'s No. 2 Authement, Sec. 12-19s-22e. R.U.

Bennett O. & R. Co.'s No. 1 Abel Bruce, Sec. 2-19s-22e. T.D. 2,675 ft.; 5¾-in. csg. 2,648 ft.; I.P. 112 B.F.P.D.; 4% S.W.; 10/64-in. ck.

Bennett O. & R. Co.'s No. 1 Guilbeau, Sec. 2-19s-22e. Drk.

Bennett O. & R. Co.'s No. 4 Leo Lafont, Sec. 2-19s-22e. 16-in. csg. 78 ft.; T.D. 5,196 ft.; 7-in. csg. 5,196 ft.; perf. csg. 5,174-82 ft.

Berkshire Oil Co.'s No. 1 Nicol, Sec. 9-19s-22e. 10¾-in. csg. 2,362 ft.; drlg. sh. 8,160 ft.

Brown & Woods' No. 1 Guilbeau, Sec. 2-19s-22e. R.U.

Brown & Woods' No. 1 State-Bayou, Sec. 9-19s-22e. T.D. 2,697 ft.; perf. csg. 2,650-65 ft.; I.P. 60 B.F.P.D.; 20% S.W.

Temple Hargrove's No. 4 Gaspard & Rizan, Sec. 9-19s-22e. 10¾-in. csg. 590 ft.; T.D. 5,510 ft.; 5½-in. csg. 5,490 ft.; perf. csg. 5,158-73 ft.

M. H. Marr et al's No. 1 Alario Community, Sec. 2-19s-22e. T.D. 2,665 ft.; 5-in. csg. 2,640 ft.; would not flow; S.D.

M. H. Marr et al's No. 2 Alario Community, Sec. 2-19s-22e. T.D. 2,665 ft.; 5½-in. csg. 2,640 ft.; I.P. 79 B.P.D.; pmpg.

M. H. Marr et al's No. 2 B. & D. unit, Sec. 17-19s-22e. Road comp.

M. H. Marr et al's No. 3 B.&D. unit, Sec. 12-19s-22e. M.I.M.

Martex Oil Corp. of La.'s No. 3 Falgout Holding Co., Sec. 9-19s-22e. T.D. 5,180 ft.; 5¾-in. csg. 5,156 ft.

Martex Oil Corp.'s No. 2-C Rebstock Community, Sec. 2-19s-22e. R.U.

Geo. O'Dwyer et al's No. 2 La Fourche Realty Co., Sec. 21-19s-22e. T.D. 5,177 ft.; 5¾-in. csg. 5,175 ft.

S. Rhodes' No. 1 Nickerson, Sec. 12-9s-8w. Drlg. sh. 5,520 ft.

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DALLAS, TEXAS

C. R. Schuster's No. 1 Broussard, Sec. 2-19s-22e. T.D. 2,620 ft.; fsg.

Terouche Oil Co.'s No. 2 Cheramie, Sec. 12-19s-22e. Drk.

Texas Co.'s No. 12 Golden Meadow, Sec. 78-19s-21e. T.D. 9,250 ft.; fsg.

Texas Co.'s No. 11 L.L.&E., Golden Meadow, Sec. 78-19s-21e. T.D. 5,182 ft.; 7-in. csg. 5,158 ft.

Texas Co.'s No. 6 La Terre, Sec. 1-20s-21e. 10¾-in. csg. 2,050 ft.; drlg. sh. 8,042 ft.

Texas Co.'s No. 7 State-Catfish, Sec. 2-20s-21e. T.D. 2,692 ft.; 7-in. csg. 2,670 ft.; I.P. 129 B.P.D.; ⅞-in. ck.

Grand Bay—Plaquemines Parish

Gulf Ref. Co.'s No. 2-A Grand Prairie Lv. dist., Sec. 48-20s-18e. Drlg. sdy. sh. 8,212 ft.

Gulf Oil Corp.'s No. 7-A Grand Prairie Lv. Dist., Sec. 5-20s-19e. Loc.

Gulf Oil Corp.'s No. 8-A Grand Prairie Dist., Sec. 5-20s-19e. Loc.

Gulf Ref. Co.'s No. 9-A Grand Prairie Lv. dist., Sec. 31-19s-19e. Loc.

Gulf Oil Corp.'s No. 5 State QQ, Sec. 31-19s-19e. Loc.

Gulf Ref. Co.'s No. 6 State, Sec. 5-20s-19e. Drlg. sh. 8,136 ft.

Texas Co.'s No. 1 State-Lookout Pass, Sec. 48-20s-18e. T.D. 10,252 ft.; 7-in. csg. 10,252 ft.; perf. csg. 9,987-10,013 ft. and 9,952-87 ft.; I.P. 423 B.P.D.; ⅞-in. ck.

Texas Co.'s No. 3 State-Lookout Pass, Sec. 6-20s-19e. Drlg. sh. 1,602 ft.

Grand Lake—Cameron Parish

Amerada Pet. Corp.'s No. 8 State, Twp. 13s-4w. T.D. 9,000 ft.; 5½-in. csg. 8,-999 ft.; tstg.

Superior Oil Co.'s No. 12 State, Twp. 11s-13w. Drlg. sh. 7,450 ft.

Hackberry—Cameron Parish

Gulf Ref. Co.'s No. 15 Erwin, Sec. 12-12s-10w. T.D. 6,611 ft., salt; perf. csg. 6,122-31 ft.; I.P. 552 B.P.D.; ¼-in. ck.

Hanson & Abercrombie's No. 2 Verdin, Sec. 36-12s-10w. Drlg. sh. 5,847 ft.

Stanolind O. & G. Co.'s No. 22 Cameron Parish, Sec. 16-12s-10w. Loc.

Stanolind O. & G. Co.'s No. 31 Gulf Ld., Sec. 25-12s-11w. Drlg. sh. 6,317 ft.

Superior Oil Co.'s No. 10 Vincent, Sec. 30-12s-10w. Drlg. sh.&sd. 7,209 ft.

Happytown—Iberville Parish

Shell Oil Co., Inc.'s No. 1 Schwing Lbr & Shingle Co., Sec. 85-7s-8e. Cg. sh. 10,091 ft.

Horseshoe Bayou—St. Mary Parish

Texas Co.'s No. 4 State, Sec. 23-17s-9e. Drlg. sd.&sh. 11,601 ft.

Jeanerette—St. Mary Parish

Cajun Oil Co.'s No. 1 Roanes Sugar Co., Sec. 58-13s-8e. Drk.

Herton Oil Co.'s No. 10 Banta, Sec. 40-13s-9e. Drlg. sh. 7,330 ft.

Jefferson Island—Iberia Parish

Texas Co.'s No. 5 Jefferson Island, Sec. 58-12s-5e. 10¾-in. csg. 2,209 ft.; drlg. sd.&sh. 4,079 ft.

Texas Co.'s No. 3 State, Twp. 12s-5e T.D. 7,749 ft.; P.B.; drlg. sh.&L. 6,250 ft.

Jennings—Acadia Parish

Glassell-Glassell's No. 8 McFarlain, Sec. 41-9s-2w. Drlg. sh.&sd. 7,430 ft.

Shell Oil Co., Inc.'s No. 11 Community, Sec. 40. 10¾-in. csg. 1,721 ft.; drlg. sh. 5,087 ft.

Stanolind O. & G. Co.'s No. 20 Houssiere-Latreille, Sec. 47-9s-2w. R.U.

Stricker-Pharis et al's No. 1 Gulf fee, Sec. 45-9s-2w, 16-in. csg. 60 ft.; abd.

Lafitte—Jefferson Parish

Texas Co.'s No. 15 Lafitte, Sec. 20-17s-24e. T.D. 10,135 ft.; 7-in. csg. 10,123 ft.; perf. csg. 9,475-9,505 ft.; rec. S.W.; perf. csg. 4,805-10 ft.; I.P. 212 B.P.D.; ⅛-in. ck.

Texas Co.'s No. 16 L.L.&E., Lafitte, Sec. 17-17s-24e. Drlg. sdy. sh. 1,499 ft.

Texas Co.'s No. 6-A Madison Realty Co., Sec. 17-17s-24e. Drlg. sd.&L. 10,125 ft.

Texas Co.'s No. 6 Marrero, Sec. 21-17s-24e. Loc.

La Fourche Crossing—La Fourche Parish

Lisbon-Iberia Oil Co.'s No. 1 Joe Bergeron, Sec. 16-15s-17e. Loc.

Lisbon-Iberia Oil Co.'s No. 1 Prosper Thibodaux, Sec. 17-15s-17e. T.D. 8,-750 ft.; fsg.

Lake Mongoulois—St. Martin Parish

Texas Co.'s No. 8 State, Sec. 10-10s-9e. Drlg. sh. 9,475 ft.

Lake Pelto—Terrebonne Parish

Texas Co.'s No. 31 State, Sec. 8-23s-18e. T.D. 5,761 ft.; P.B.; sdtrkd.; drlg. sh. 4,040 ft.

Leeville—La Fourche Parish

Texas Co.'s No. 73 Leeville, Sec. 27-21s-22e. Drlg. sh. 4,218 ft.

Neale—Becuregard Parish

Atlantic Ref. Co.'s No. 1 Musser-Davis Lbr. Co., Sec. 26-3s-11w. Loc.

Atlantic Ref. Co.'s No. 1 Spiers, Sec. 26-3s-11w. Drlg. sh. 2,426 ft.

New Iberia—Iberia Parish

Acadian Prod. Co.'s No. 4 E. T. Weeks, Sec. 51-12s-7e. Loc.

Wm. Helis' No. 10 Schwing, Sec. 56-12s-7e. T. salt 8,952 ft.; T.D. 8,960 ft.; run csg.

Wm. Helis' No. 1 Bolivar, Sec. 56-12s-7e. Drk.

Texas Co.'s No. 2 Bryant, Sec. 25-12s-7e. R.U.

Texas Co.'s No. 7 Bryant, Sec. 25-12s-7e. R.U.

Texas Co.'s No. 16 Duke, Sec. 26-12s-7e. Loc.

Texas Co.'s No. 17 Duke, Sec. 26-12s-7e. Drlg. sd.&sh. 5,649 ft.

Texas Co.'s No. 2 Hebert, Sec. 25-12s-7e. 10¾-in. csg. 1,935 ft.; T.D. 8,535 ft.; 7-in. csg. 8,515 ft.; flwd. oil and S.W. 8,470-84 ft.; killed to W.O.

Texas Co.'s No. 2 Smith, Sec. 71-12s-7e T.D. 9,791 ft.; 7-in. csg. 9,791 ft.; perf. csg. 9,212-26 ft.; flwd. S.W.; killed to W.O.

North Crowley—Acadia Parish

Humble O. & R. Co.'s No. 7 Ohlenforst, Sec. 34-8s-1e. Drlg. L. 8,346 ft.

Humble O. & R. Co.'s No. 5 Stakes, Sec. 33-8s-1e. R.U.

Humble O. & R. Co.'s No. 6 Stakes, Sec. 33-8s-1e. Drk.

North Elton—Calcasieu Parish

W. T. Burton's No. 1 Calcasieu Natl. Bnk., Sec. 23-6s-3w. Drlg. sh. 1,173 ft.

W. T. Burton's No. 1 Pine Farms, Sec. 24-6s-3w. Loc.

Paradis—St. Charles Parish

Humble O. & R. Co.'s No. 1 Matthews & Olivera, Sec. 4-14s-20e. Loc.

Texas Co.'s No. 4 L.L.&E. Paradis, Sec. 6-14s-20e. 10¾-in. csg. 2,607 ft.; drlg. sh. 9,815 ft.

Texas Co.'s No. 1 Sunset Realty & Planting Co., Sec. 38-14s-20e. 10¾-in. csg. 2,716 ft.; drlg. sh. 8,026 ft.

Plumb Bob—St. Martin Parish

Texas Co.'s No. 13 St. Martin Ld. Co., Sec. 21-8s-7e. T.D. 8,464 ft.; 7-in. csg. 8,464 ft.; perf. csg. 8,345-58 ft.; rec. S.W.; 40-min. D.S.T.

Texas Co.'s No. 14 St. Martin, Sec. 21-8s-7e. Loc.

Port Barre—St. Landry Parish

Gulf Ref. Co.'s No. 16 Wilson Cochran, Sec. 4-6s-5e. R.U.

McDannald Oil Co.'s No. 1 Sibille, Sec. 7-6s-6e. T.D. 6,084 ft.; P.B. to sdtrk.

McDannald Oil Co.'s No. 2 Sibille, Sec. 7-6s-6e. Loc.

Pan American Prod. Co.'s No. 6 Garland, Sec. 4-6s-5e. Drlg. sh. 5,376 ft.

Texas Co.'s No. 28 Botney Bay, Sec. 4-6s-5e. Drlg. sd.&gvl. 2,015 ft.

Potash—Plaquemines Parish

Humble O. & R. Co.'s No. 43 Orleans Lv. Bd., Sec. 14-18s-15e. Drlg. sh. 7,920 ft.

Quarantine Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 6-A Orleans Lv. Bd., Sec. 7-19s-17e. Drlg. sd.&sh. 8,536 ft.

Gulf Ref. Co.'s No. 17 State, Twp. 19s-17e. Drlg. sdy. sh. 6,096 ft.

Gulf Ref. Co.'s No. 18 State, Twp. 19s-17e. Loc.

Sorrento—Ascension Parish

Sorrento Synd.'s No. 2 L. L. Bernard Sec. 22-10s-4e. R.U.

South Jennings—Jeff Davis Parish

W. H. Collins' No. 1 Richard, Sec. 22 10s-3w. Drk.

Stanolind O. & G. Co.'s No. 1 W. H Adams, Sec. 14-10s-3w. Drlg. sh.&shlls. 6,320 ft.

Stanolind O. & G. Co.'s No. 1 E. K. Atwell, Sec. 14-10s-3w. Loc.

Stanolind O. & G. Co.'s No. 1 L. Remage, Sec. 9-10s-3w. T.D. 10,953 ft.; fsg.

South Roanoke—Jeff Davis Parish

Continental Oil Co.'s No. 2 Fay, Sec. 31-10s-3w. Drlg. sh. 7,308 ft.

Continental Oil Co.'s No. 4 Sturdevant, Sec. 35-10s-4w. Drlg. sh. 9,870 ft.

Starks—Calcasieu Parish

W. T. Burton & McLean's No. 2 Industrial Lbr. Co., Sec. 29-9s-12w. T.D. 5,-849 ft.; T. sd. 5,833 ft.; rec. 180 ft. oil; D.S.T. 5,833-49 ft.

W. T. Burton Oil Co.'s No. 1 Lutcher Moore Lbr. Co., Sec. 30-9s-12w. T.D. 4,810 ft.; 5½-in. csg. 3,990 ft.

Sweet Lake—Cameron Parish

Pure Oil Co.'s No. 16 Stanolind O. & G Co., Sec. 12-13s-8w. T.D. 7,842 ft.; 5½-in. csg. 7,441 ft.; perf. csg. 6,686-6,712 ft.; I.P. 110 B.P.D.

Timbalier Bay-La Fourche

Gulf Ref. Co.'s No. 6 State, Sec. 36-23s-21e. Loc.

Venice—Plaquemines Parish

Tide Water Asso. Oil Co.'s No. 1 C. L. Johnson, Sec. 35-21s-30e. Drlg. sh. 7,-906 ft.

Tide Water Asso. Oil Co.'s No. 12 Manhattan Ld. Co., Sec. 35-21s-30e. Loc.

Vermilion Bay—Iberia Parish

Texas Co.'s No. 4-B Vermilion Bay, Twp 16s-15e. 11¾-in. csg. 4,454 ft.; T. salt 5,855 ft.; T.D. 7,546 ft.; fsg.

Villa Platte—Evangeline Parish

Amerada Pet. Corp.'s No. 1 J. Foret, Sec. 1-4s-2e. Drlg. sh. 5,139 ft.

Continental Oil Co.'s No. 6 Deville, Sec 3-4s-2e. T.D. 9,005 ft.; perf. csg. 8,788-96 ft.

Continental Oil Co.'s No. 5 Hirsch, Sec. 44-3s-2e. Drlg. sd. 7,212 ft.

Continental Oil Co.'s No. 1 Adam Tate, Sec. 41-4s-2e. T.D. 10,089 ft.; perf. csg. 8,914-32 ft.; I.P. 108 B.P.D.; ¼-in. ck.

Continental Oil Co.'s No. 1 J. E. Vidrine, Sec. 1-4s-2e. T.D. 10,236 ft.; perf. csg. 10,040-50 ft.; I.P. 350 B.P.D.; ⅛-in. ck.

Continental Oil Co.'s No. 1 J. E. Vidrine, Sec. 47-3s-2e. Drlg. sh. 7,220 ft.

J. K. Hughes' No. 2 Ortego, Sec. 36-3s-2e. Drlg. sh. 10,096 ft.

West Cote Blanche—St. Mary Parish

Texas Co.'s No. 2 State, West Cote Blanche, Twp. 16s-6e. Cg. sdy. sh. 3,-066 ft.; T. sd.; S.O. 3,060 ft.

Texas Co.'s No. 3 State, West Cote Blanche, Twp. 16s-6e. Loc.

West Gueydan—Vermilion Parish

Danciger O. & R. Co.'s No. 3 Vidrine, Sec. 1-4s-2e. Spd.

Magnolia Pet. Co.'s No. 1 Benoit, Sec. 5-12s-2w. R.U.

West Lake Verret—St. Mary Parish

Shell Oil Co., Inc.'s No. 4 Jeanerette, 7⅝-in. csg. 10,683 ft.; T.D. 11,890 ft.; P.B. 8,858 ft.; perf. csg. 8,840-55 ft.; I.P. 288 B.O. and 192 bbl. S.W.; 17/64-in. ck.; T.P. 1,050 lb.; C.P. 620 lb.

White Castle—Iberville Parish

Jolly Pet. Corp.'s No. 1 E. B. Adam. Sec. 1-11s-12e. T.D. 9,002 ft.; 7-in. csg. 9,001 ft.

Shell Oil Co., Inc.'s No. 16 Wilbert, Sec. 8-11s-12e. Cg. sh. 6,394 ft.

Woodlawn—Jeff Davis Parish

Union Sulphur Co.'s No. 2 Johnson, Sec 12-9s-6w. T.D. 8,102 ft.; 7-in. csg. 8,-102 ft.; perf. csg. 8,092-97 ft.

Union Sulphur Co.'s No. 1 T. Miller, Sec. 6-9s-5w. Loc.

S. LOUISIANA WILDCATS

Acadia Parish

Humble O. & R. Co.'s No. 1 F. E. Atkinson, Sec. 26-10s-1e. T.D. 2,500 ft.; run 13⅜-in. csg.

Assumption Parish

Shell Oil Co., Inc.'s No. 1 A. L. Patereau, Unit 1, Sec. 66-16s-14e. R.U.

Becuregard Parish

Danciger O. & R. Co.'s No. 1 G. E. Le-Roy, Sec. 2-3s-9e. Loc.

Loffland Bros.' No. 3 Long Bell Lbr. Co., Sec. 24-5s-11w. Drlg. sh. 9,796 ft.

Cameron Parish

Phillips Pet. Co.'s No. 1 Miami Corp., Sec. 11-4s-6w. Well tried to blow out; stk. D.S.; sdtrkd. 3,775 ft.; 9⅝-in. csg. 9,583 ft.; og. 10,248 ft.

Superior Oil Co.'s No. 2 State, Twp. 14s-9w. T. salt 3,614 ft.; drlg. salt 5,686 ft.

East Baton Rouge Parish

Farris & Golding Drlg. Co.'s No. 1 Paulet, Sec. 58-8s-1e. 10¾-in. csg. 1,780 ft. S.D. 6,828 ft.

Iberville Parish

Falcon-Seaboard's No. 1 Folse, Sec. 11s-13e. Drk.

Shell Oil Co., Inc.'s No. 1 Southwood, Sec. 20-9s-2e. T.D. 9,673 ft.; fsg.

Jeff Davis Parish

H. M. Naylor's No. 1 Acadia Dev. Co., Sec. 12-10s-2w. 10¾-in. csg. 2,115 ft.; 9⅝-in. csg. 9,006 ft.; drlg. sh. 9,975 ft.

Union Sulphur Co.'s No. 1 Eba Miller, Sec. 6-9s-5w. Loc.

Jefferson Parish

Vendome Pet. Co.'s No. 1 Coulon, Sec. 15-15s-23e. Drlg. sh. 8,020 ft.

La Fourche Parish

Ernest Cockrell's No. 1 La Fourche Ld. Co., Sec. 32-18s-22e. 10¾-in. csg. 650 ft.; T.D. 2,988 ft.; prep. to res. drlg.

Gulf Oil Corp.'s No. 1-B Bowie Lbr. Co., Sec. 69-15s-19e. Drlg. sh. 11,896 ft.

Humble O. & R. Co.'s No. 1 Caldwell Sugars, Inc., Sec. 115-14s-15e. 13⅜-in csg. 2,988 ft.; 9⅝-in. csg. 10,921 ft.; drlg. sh. 11,246 ft.

Livingston Parish

Roderick Tower, Inc.'s No. 1 James Pirie, Sec. 41-7s-3e. T.D. 9,050 ft.; abd.

Plaquemines Parish

Gulf Oil Corp.'s No. 1-E Buras Lv. dist., Sec. 1-23s-10e. Drlg. sh.&L. 8,667 ft.

California Co.'s No. 1 Delta Minerals, Sec. 2-15s-24e. 13⅜-in. csg. 2,028 ft.; T.D. 10,246 ft.; 7-in. csg. 10,188 ft.; perf. csg. 9,963-74 ft.; flwd. 320 B.F.P.D.; ¼-in. ck.; 20 to 30% S.W.; killed; pull screen.

Rapides Parish

Gulf States' No. 1 Long Bell Lbr. Co., Sec. 46-4n-3w. R.U.

R. L. Wheelock et al's No. 1 H. V. Rushing, Sec. 1-2n-1s. Loc.

St. Bernard Parish

Gulf Ref. Co.'s No. 4 State-R.R. (Lake Borgne), Twp. 12s-15e. 9⅝-in. csg. 8,-161 ft.; T.D. 12,019 ft.; abd.

St. Charles Parish

R. H. Parker et al's No. 1 C. L. Thompson, Sec. 87-13s-20e. 10¾-in. csg. 2,-599 ft.; drlg. sh. 10,600 ft.

St. James Parish

St. James Oil Co.'s No. 1 Celstine Plant, Sec. 74-11s-4e. R.U.

St. Landry Parish

S. A. Thompson's No. 1 Wm. Murphy, Sec. 22-5s-6e. 10¾-in. csg. 1,209 ft.

Novo Generating Sets give a smooth flow of dependable power for rig lighting and power for electric tools. Rugged, continuous-duty, oil field engines power these sets, assuring unfailing night and day operation.

These oil field generating sets are compact, close-coupled outfits with steel skids with end loops for easy portability. Can also be furnished on two- or four-wheel trucks.

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NOVO ENGINE COMPANY
LANSING, MICHIGAN

St. Mary Parish

Herton Oil Co.'s No. 1 H. Gonsoulin, Sec. 68-13s-8e. Bldg. rd.
Morgan City Oil Co.'s No. 1 Adeline Sugar Co., Sec. 33-13s-9e. Loc.
Sun Oil Co.'s No. 1 Belle Isle, Sec. 6-18s-11e. Bldg. drk.

Terrebonne Parish

Barnsdall Oil Co.'s No. 1 Nelson, Sec. 2-21s-11e. 10¾-in. csg. 2,767 ft.; 8⅝-in. csg. 10,505 ft.; T.D. 11,731 ft.; D.S.S.; P.B. 8,500 ft.
Stanolind O. & G. Co.'s No. 1 State (Bay Junop), Sec. 35-21s-14e. Loc.
Texas Co.'s No. 5 State, Coon Point, Twp. 23s-14e. Loc.

Vermilion Parish

Union Oil Co. of Calif.'s No. 1 Walter White hrs., Sec. 17-15s-1e. 13⅜-in. csg. 2,800 ft.; T.D. 10,348 ft.; fsg.

TEXAS

Week Ended May 11

GULF COAST FIELDS

Anchor—Brazoria County

Humble O. & R. Co.'s No. 2 Mettler. Drlg. sh.&L. 9,036 ft.
Glenn McCarthy's No. 1 Kate and Laura Yocum, J. D. Valderas Sur. T.D. 10,544 ft.; 5½-in. lnr. 10,542 ft.; perf. csg. 10,398-10,401 ft.; I.P. 162 bbl. dist.; ¼-in. ck.
Sun Oil Co.'s No. 1 Morris Stern, Shubal Marsh Sur. 18⅝-in. csg. 128 ft.; drlg. sd.&sh. 9,980 ft.

Old Ocean—Brazoria County

Harrison & Abercrombie's No. 1 Chenault, C. Breen Sur. Drlg. sd.&sh. 9,820 ft.
Harrison & Abercrombie's No. 1 Mueller et al, M. M. Nuckols Sur. Drlg. sh.& sd. 5,630 ft.
Harrison & Abercrombie's No. 1 A. F. Wilson, D. McCormick Sur. Drlg. sd.& sh. 9,736 ft.
Stanolind O. & G. Co.'s No. 2 Giles, C. Breen Sur. Drlg. sd.&L. 9,228 ft.
Stanolind O. & G. Co.'s No. 1 Hughes, C. Breen Sur. T.D. 11,014 ft.; 5½-in. csg. 10,011 ft.
Stanolind O. & G. Co.'s No. 1 Stevenson-Donovan, Inla Keep Sur. 9⅝-in. csg. 7,039 ft.; drlg. sh.&L. 8,796 ft.
Sun Oil Co.'s No. 4 Borsodi, C. Breen Sur. 13⅜-in. csg. 1,520 ft.; 9⅝-in. csg. 7,009 ft.; drlg. sh.&sd. 10,063 ft.
Sun Oil Co.'s No. 5 McCampbell, C. Breen Sur. Drlg. sh.&L. 8,926 ft.

Seabreeze—Chambers County

Sun Oil Co.'s No. 1 Felix Jackson, A. v Barbo Sur. 10¾-in. csg. 1,943 ft.; T.D. 8,775 ft.; abd.

South Cotton Lake—Chambers County

Humble O. & R. Co.'s No. 1 E. E. Barrow, S. Barrow Sur. Spd.

Caplen—Galveston County

Sun Oil Co.'s No. 5 Zinn & Forman, S. F. Hughes Sur. R.U.

League City—Galveston County

Phillips Pet. Co.'s No. 1 Parr, Perry & Austin Sur., Lot 9. Drlg. sh. 6,586 ft.
Phillips Pet. Co.'s No. 4 Stewart Title Guaranty Co., S. F. Austin Sur. 10¾-in. csg. 3,520 ft.; 7⅝-in. csg. 9,510 ft.; T.D. 11,270 ft.; well blew out; killed; P.B.; sdtrkd.; drlg. sh. 10,076 ft.

Clear Lake—Harris County

Humble O. & R. Co.'s No. 46 C. West, J. Routh Sur. Drlg. sh.&L. 4,760 ft.
Humble O. & R. Co.'s No. 44-C fee, G. B. McKinstry Sur. Loc.

Friendswood—Harris County

Humble O. & R. Co.'s No. 23 West Prod. L. Hemenway Sur. 9⅝-in. csg. 1,039 ft.; T.D. 6,044 ft.; tstg.

Fannett—Jefferson County

Gulf Oil Corp.'s No. 4 Bordages, J. Probarth Sur. T.D. 8,238 ft.; drlg. plug.

South China—Jefferson County

Titanic Oil Co.'s No. 3-A Broussard, S. Miles Sur. Loc.

Esperson—Liberty County

General Crude Oil Co.'s No. 20 Davis, A. McNeil Sur. 8⅝-in. csg. 7,181 ft.; T.D. 8,471 ft.; fsg.
General Crude Oil Co.'s No. 12-B Esperson, A. McNeil Sur. Loc.
General Crude Oil Co. and R. A. Welch's No. 1 fee, M. Duncan Sur. Drlg. sh. 5,920 ft.

Martha—Liberty County

Stanolind O. & G. Co.'s No. 1 Garrow, I.&G.N.R.R. Sur. 7. T.D. 9,825 ft.; 5½-in. csg. 9,208 ft.

Wilson Creek—Matagorda County

Barnsdall Oil Co.'s No. 1 Stoddard, G. B. M. Cotton Sur. 9⅝-in. csg. 7,895 ft.; drlg. sh. 8,620 ft.

Ace—Polk County

Shell Oil Co., Inc.'s No. 2 Kirby West Lbr. Co., P. A. Sublett Sur. Drlg. sdy. sh. 3,095 ft.

Seqno—Polk County

Gordon Oil Co.'s No. 9-A Wing, I.&G.N. Sur. 15. T.D. 8,120 ft.
Gulf Oil Corp.'s No. 4 Quinn, A. Morales Sur. R.U.
Gulf Oil Corp.'s No. 33 Wing, I.&G.N. Sur. 15. Drlg. sh.&L. 6,600 ft.
Gulf Oil Corp.'s No. 34 Wing, I.&G.N. Sur. 13. Drlg. sh. 7,050 ft.
Humble O. & R. Co.'s No. 22 Kirby Lbr. Co., M. Victor Sur. T.D. 8,150 ft.; P.B. sdtrkd.; drlg. sh.&L. 7,476 ft.

Joe's Lake—Tyler County

Republic Prod. Co.'s No. 4 Sterne, A. Sterne Sur. Drlg. sh. 4,410 ft.
Republic Prod. Co.'s No. 36 fee, N. Hurd Sur. Drlg. sh. 2,030 ft.
Dick Schwab et al's No. 1 Nona Fletcher Lbr. Co., E. Thompson Sur. Loc.

Hilje—Wharton County

Texas Co.'s No. 2 Peters, E.T.R.R. Sur., Sec. 101. Loc.

GULF COAST WILDCATS

Brazoria County

Glenn McCarthy's No. 1 E. W. K. Andrau, H.T.&B. Sur. 5. 10¾-in. csg. 3,512 ft.; T.D. 11,468 ft.; sdtrkd.; T.D. 11,410-13 ft.; perf. lnr. 11,406-09 ft.; flwd. 158 bbl. dist. and 146 bbl. S.W.; ¼-in. ck.
Glenn McCarthy's No. 2 Houston Farm Dev. Co., J. Perry & E. Austin Sur. 7. 10¾-in. csg. 3,492 ft.; T.D. 11,760 ft.; 5½-in. lnr. cs. 11,170 ft.; perf. csg. 10,128-31 ft. and 10,124-28 ft.; flwd. S.W.
Glenn McCarthy's No. 1 W. B. Munson, Samuel Carter Sur. Drlg. sh.&sdy. sh. 10,073 ft.
Rowan & Nichols Oil Co.'s No. 1 Hubbard, Wm. Harris Sur. Drlg. sh. 7,906 ft.

Chambers County

Humble O. & R. Co.'s No. 1 State, Sec. 247, Galveston Bay. Drlg. sh. 2,350 ft.
Humble O. & R. Co.'s No. 1 State, Sec. 288, Galveston Bay. Loc.
Sun Oil Co.'s No. 1 Clara C. Smith, T.& N.O. Sur. 82. T.D. 8,549 ft.; sdtrkd.; T.D. 8,320 ft.; D.S.S.; P.B.; sdtrkd.; drlg. sh. 3,939 ft.
Standard Oil Co. of Texas' No. 61-54 State. T.D. 9,538 ft.; 7-in. csg. 9,129 ft.; prep. to test.

Colorado County

Cockburn Oil Corp. No. 1 R. W. Ferrs, H. Chrisman Sur. Loc.
Shell Oil Co., Inc.'s No. 1 Flow Realty Co., Obediah K. Winn Sur. Drlg. sh. 8,000 ft.; no report; "tight" well.

Fort Bend County

H. C. Cockburn's No. 1 G. W. Burkett, Bundieck Sur. Loc.
W. L. Goldston's No. 1 Kulcak, Carl Radke Sur., Sec. 48. R.U.
Tide Water Asso. Oil Co.'s No. 1 Geo. Armstrong, Jas. Scott Sur. Drlg. sh. 7,802 ft.

Galveston County

Stanolind O. & G. Co.'s No. 1 J. A. Hulen, A. Brigham Sur. 13⅜-in. csg. 2,470 ft.; drlg. sh. 3,620 ft.

Grimes County

Jordan Drlg. Co. et al's No. 1 Dodd, C. Campbell Sur. R.U.

Harris County

Christian-Carpenter Drlg. Co.'s No. 1 Anderson, J. C. Anderson Sur. M.I.M.
Gulf Oil Corp.'s No. 1 H. H. Roberts, A. Roberts Sur. T.D. 7,583 ft., S.D.
Hamill & Smith et al's No. 1 C. B. Carter, D. Putnam Sur. Spd.
Joyce Richardson et al's No. 1 A. and H. Marks, J. Beard Sur. Rec. S.W.; D. S.T. 6,740-70 ft.; drlg. ahd.
Joyce Richardson's No. 1 Marks, J. C. Ogburn Sur. Drk.
Martin Thompson's No. 1 Highlands Farm Corp., J. White Sur. Drlg. 6,109 ft.

Jackson County

Barnsdall Oil Co.'s No. 1 Lozarus, S. F. Austin Sur. T.D. 1,350 ft.; run 9⅝-in. csg.
W. Stewart Boyle's No. 1 J. M. Bennett R. Musquez Sur. 10¾-in. csg. 708 ft. T.D. 6,211 ft.; abd.
J. F. Hutchins et al's No. 1 Wearden, J Williams Sur. S.D. 6,000 ft.
Wellington Oil Co. et al's No. 1 Ward est., I.&G.N.R.R. Sur. Tstd. 325 lb. W.P.; 50 ft. gas-cut mud; D.S.T. 5,825-44 ft.; cg. ahd.

Jasper County

Houston Oil Co. et al's No. 1 Medrano fee, Jose Medrano Sur. Loc.

Jefferson County

Merrimac Oil Corp.'s No. 1 State, Tr. 72, 50 ft. due E of Harwell's abd. hole. W.O.; R.U.

Liberty County

Hebert & Smith's No. 1 W. E. Boyt, H. &T.C.R.R. Sur. T.D. 8,834 ft.; cleaned hole to 8,096 ft.; sdtrkd. 7,824 ft.; 7-in. csg. 8,700 ft.; T.D. 8,865 ft.; perf. csg. 8,535-75 ft.; made sqz. job; W.O.; D.S. to D.D.

Matagorda County

Deep Rock Oil Corp.'s No. 1 Tom Petrucha, F. W. Dempsey Sur. Drlg. sh. 10,470 ft.
Marr McLean's No. 3 Gulf-Tex Oil Co., Ira Ingram Lge. R.U.
Stanolind O. & G. Co.'s No. 1 General American Life Ins., J. C. Peyton Sur. 9⅝-in. csg. 8,001 ft.; drlg. sdy. sh. 9,620 ft.
Texas Co.'s No. 1 A. B. Pierce, H.&G. N. Sur., Sec. 1, Blk. 65. R.U.
Texas Gulf Prod. Co.'s No. 1 Gulf Tex. Oil Co., Ira Ingram Sur. Drk.
Texas Co.'s No. 1 Taylor, Freeman George Sur. Drlg. sh. 9,386 ft.
Van M. Vincent's No. 1 J. F. McNabb Est., E. R. Wightman Lge. Loc.

Montgomery County

H. C. Cockburn et al's No. 1 Bender, Montgomery Co. Sch. Ld. and De Crow Sur. Loc.
Continental Oil Co.'s No. 1 Bender est., Montgomery Co. Sch. Ld. Sur. 13⅜-in. csg. 1,243 ft.; drlg. sh. 10,860 ft.
David B. MacDaniel's No. 1 Hattie O. Baldwin, Walker Co. Sch. Ld. Sur. 10¾-in. csg. 1,230 ft.; T.D. 9,741 ft.; 5½-in. csg. on bttm.; perf. csg. est. 9,300-9,400 ft.; reperf. csg. 9,392-9,425 ft.; fsg. for tbg.

San Jacinto County

Harrison & Abercrombie's No. 1 W. S. Dixon, Solomon Cole Sur. Drlg. sh. &L. 5,626 ft.
Shell Oil Co., Inc.'s No. 1 Coldine, J. Rankin Sur. Drlg. sh.&L. 7,260 ft.

Tyler County

J. C. Bonham's No. 1 Southwestern Lbr. Co., F. Smyth Sur. T.D. 1,340 ft.; P.B 1,126 ft.; 4-in. csg. 1,107 ft.; flwd. P. L.O. for 3 hrs.; sanded up.

Washington County

J. A. Deering's No. 1 C. W. Bohne, S Gates Sur. S.D. 6,545 ft.
Mount Selman Oil Co.'s No. 1 Fritz Fuelberg, W. Lightfoot Sur. S.D. 5,962 ft.

Wharton County

Sam Harrison's No. 1 Carlson, Morris & Cummins Sur., Sec. 3. O.W.D.D.; T.D. 6,510 ft.; wshg. to bttm.
Dr. T. M. Neal's No. 1 fee, Elisha Flack, 4,840 ft.

S. W. TEXAS WILDCATS

Aransas County

Continental Oil Co.'s No. 2 St. Charles Co., R. D. Blassman Sur.; (relief well to blow out). Drlg. sh. 6,524 ft.

Bastrop County

August Bering's No. 1 Rivers, B. Osborne Sur. Drlg. 1,170 ft.
C. R. Franklin's No. 1 Oscar McDonald, Martha Baker Sur. T.D. 2,232 ft.; fsg.
W. C. McGlothlin et al's No. 1 Bill, Albert Black Sur. 35. R.U.
Ogden & Riddle's No. 6 Riddle, J. B. Blalock Sur. T.D. 2,244 ft., clk.; 5½-in. csg. 2,005 ft.

Bee County

Mills Bennett Prod. Co. and Anderson-Prichard Oil Co.'s No. 2 Robinson, J. M. Uranga Sur. (Wlx. test, West Tuleta field). 13⅜-in. csg. 2,537 ft.; 9⅝-in. csg. 7,804 ft.; T.D. 9,210 ft.; perf. csg. 7,545-50 ft.; tstd. 6½ bbl. dist. per hr.; ¼-in. ck. on tbg.; T.P. 2,600 lb.; C.P. 2,250 lb.; S.I.; W.O.
Sultex Oil Co.'s No. 1 Wood, Jas. McGeehan Sur. Drlg. 6,010 ft.
Union Prod. Co.'s No. 56 Ray T. Hanson Sur.; (Pettus field). Wlx. test; 10¾-in. csg. 4,856 ft.; T.D. 8,990 ft.; perf. csg. 3,933-52 ft.; I.P. 34 B.P.D.; jetting.

Bell County

J. J. Cormas' No. 1 Jeff Ellis, Elizabeth Berry Sur. S.D. 493 ft.

Bexar County

Joe Noake's No. 1 San Antonio Sub. Irrg. Farm, W. Miller Sur. 180. T.D. 780 ft.

Caldwell County

J. E. Dickson's No. 1 Jeff Connolly, J. D Rains Sur. Drlg. Taylor marl 2,100 ft.
Kean & Williamson's No. 1 E. E. Rector, J. Roberts Sur. T.D. 1,781 ft.; S.D.

Calhoun County

Coronado Corp.'s No. 1 K. Weider, Hidalgo Sur., 3 mi. SE Seadrift. "Tight well"; reported to be tstg.; 5½-in. csg. 9,750 ft.; perf. csg. 9,500-9,600-9,700 ft.; rec. S.W.; made sqze. job at 8,580 ft.; S.D.
Eura B. Oil Co.'s No. 1 T. P. Traylor, Sec. 3, I.&G.N. Sur. M.I.M.

Cameron County

Sal Vieja Oil Co. et al's No. 1 Garcia, Santa Isabel gr. 8⅝-in. csg. 8,322 ft.; drlg. sh.&L. 8,926 ft.

Duval County

Bridwell Oil Co.'s No. 1-A Rogers, J. Poltevent Sur., Sec. 21. R.U.
W. L. Catlin et al's No. 1 Louis Escapule, J. Poltevent Sur. 73. R.U.
Government Wells Oil Corp.'s No. 1 Lundell, J. Poltevent Sur., Sec. 364. T.D. 1,359½ ft.; 5½-in. csg. 1,347 ft.
Mayfair Oil Corp.'s No. 2 Yates, J. Poltevent Sur. 323. Loc.
Sun Oil Co.'s No. 1 Garcia, A.B.&M. Sur., Sec. 407. T.D. 5,087 ft.; 5½-in. csg. 4,959 ft.

Gillespie County

E. L. Nixon's No. 1 Mayford, Pedro Cabrera Sur. 29. Drlg. sh. 675 ft.

Gonzales County

M. T. Huebner's No. 1 M. P. Smith, R. Plummer Sur. T.D. 1,135 ft.

Guadalupe County

Wellington Oil Co.'s No. 1 Mouermann, Jose de la Bauma Sur. R.U.

Hidalgo County

Gulf State Oil Co.'s No. 2 Cardinas, San Salvador del Tule gr. 16-in. csg. 157 ft. T.D. 8,700 ft.; perf. csg. 8,190-8,220 ft.; tstg.

Jim Hogg County

Mike Butler's No. 1 Houghton Allen, Blk. 12, Sur. 49. T.D. 3,660 ft.; abd.
Mike Butler et al's No. 1 John Allen, B. S.&F. Sur. 49. Drlg. sh. 3,520 ft.
R. W. Erwin's No. 1 Jauer, H.&G.N.R.R. Sur. 15. T.D. 3,512 ft.; abd.
French Oil Corp.'s No. 3 Pena, G. W. Rose Sur. 574. Loc.
Humble O. & R. Co.'s No. 3 Mestena O. & G. Co., San Antonio de Baluarte gr., Sec. 392. R.U.
Magnolia Pet. Co.'s No. 45 Merchants State Bnk., Sur. 267. T.D. 2,582 ft.; abd.

Jim Wells County

J. W. Calvert's No. 1 Spoetzle, Wm. Hobbs Sur. T.D. 4,814 ft.; flwd. P.L. O.; D.S.T. 4,811-14 ft.; run csg.
Henshaw Bros.' No. 1 Blasehke, Casa Blanca gr. T.D. 5,603 ft. ;5½-in. csg. 5,175 ft.; perf. csg. 5,100-03 ft.; flwg. 25 B.F.P.D.; 7/64-in. ck.; 15% S.W.
H. H. Howell and Tesemelis' No. 1 D. C. Daniels, M. Berrera gr. Loc.
H. H. Howell and W. C. McBride, Inc.'s No. 1 E. Schreade, Casa Blanca gr., 2 mi. NE of Orange Grove. Drlg. sh. 2,935 ft.
Mid-Continent Pet. Corp.'s No. 1 Schonvogel, Casa Blanca gr. Loc.
M. M. Miller's No. 1 fee, Casa Blanca gr. T.D. 6,108 ft.; abd.
Wm. Spice et al's No. 2 Schaller, Los Presnos de Abajo gr. T.D. 5,604 ft.; abd.

Karnes County

Luling O. & G. Co.'s No. 1 Nilson, C. Martinez Sur. T.D. 2,988 ft.; abd.

Kendall County

C. M. Dewey's No. 2 Seidensticker, R. Davis Sur. 20. S.D. 950 ft.

Kimble County

Austin Bridge Co.'s No. 1 Wilkinson, Brooks & Burleson Sur. Drlg. 672 ft.
J. C. Renfro's No. 1 D. C. Morales, Hrs. of H. Grote Sur. 423. T.D. 575 ft.
Schwab-Carlyle & Auld's No. 1 Baker, F. C. Stisser Sur. T.D. 1,490 ft.; fsg.

Kleberg County

Skelly Oil Co.'s No. 1 State, Laguna de Los Olmos gr., Tr. 385. Rec. 294 ft. oil, 9½-min. D.S.T. 7,455-60 ft.; drlg. sh. 7,896 ft.

La Salle County

Robt. Cooper's No. 1 Yaeger, A.B.&M. Sur. 53. S.D. 695 ft.
H. R. Cullen's No. 1 A. L. Washburn, L. W. Earnest Sur. 88. Drlg. sh. 2,530 ft.

Lee County

Fred Pederson et al's No. 1 Brown, David Hudson Sur. T. Glen Rose L. 6,600 ft.; T.D. 8,202 ft.; prep. to run csg.

Live Oak County

W. R. Davis, Inc.'s No. 1 Nichols, Simeon Ryan Sur. 66. 7-in. csg. 80 ft.; drlg. 1,420 ft.
Humphries & Hotchkin's No. 1 Hamilton, H.&G.N. Sur. 3. 8-in. csg. 80 ft.; T.D. 2,138 ft.; abd.
E. M. Jones' No. 1 West, Lot 400, Blk. of West subd. T.D. 10,839 ft.; 6-in. csg. 9,596 ft.; perf. csg. 9,503-18 ft. and 9,485-9,503 ft.; swbd. gas; P.B.; prep. to perf. csg. 7,760-70 ft.; swbd. S.W. and mud.
Messer & Cage's No. 1 Kluver, S. E. Gilmore Sur. 406. 10-in. csg. 35 ft.; drlg. sh. 2,350 ft.
W. R. Quinn, et al's No. 1 Stolze, J. F. Huizar Sur. 31. T.D. 2,146 ft.; abd.
Smith & Storey's No. 1 Lyne, A.C.H.& B. Sur. 163. T.D. 1,318 ft.; fsg.
L. W. Stieren's No. 3 Lange, Thos. Adams Sur. T.D. 1,497 ft.

McMullen County

W. F. Ashby's No. 1 Enlaw, D. M. Stapp Sur. 27. Drlg. 517 ft.
Tybro Royalty Co.'s No. 3 Martin, H. L. Williams Sur. 18. Cg. 663 ft.
Tybro Royalty Co.'s No. 4 Martin, H. L. Williams Sur. Loc.
Van Dresar's No. 2 Brown, Sur. 54. T.D. 899 ft.; abd.

Medina County

G. R. and L. J. Dorsey's No. 1 Robertson, John George Sur. Drlg. 428 ft.
Great Southern Exp. Co.'s No. 1 A. Muennick Sur. 5. S.D. 410 ft.

Nueces County

Continental Oil Co.'s No. 1 Davis, O.W. D.D.; drlg. sh. 7,889 ft.
Humble O. & R. Co.'s No. 1-D State, Laguna Madre Bay, Flour Bluff field. T.D. 6,794 ft.; run survey.
John Manley et al's No. 1 Ruegg, Geo. H. Pauls subd. of Driscoll ranch. Loc.
Pure Oil Co.'s No. 1 S. Little, S. Ward Sur. 194. 13⅜-in. csg. 179 ft.
Richardson Pet. Co.'s No. 1 Studer, M. L. De Herrera gr. T.D. 7,524 ft.; 7-in. csg. 5,202 ft.; perf. csg. 5,195-5,207½ ft.; I.P. 225 B.P.D.; ¼-in. ck.
Southern Minerals Corp.'s No. 1 D. C. Heilmann, E. R. Oliver, Jr., Sur., Sec. 148. 10¾-in. csg. 746 ft.
Stanolind O. & G. Co.'s No. 1 State, C. M. Blucher Sur., Tr. 746, 1½ mi. S of E. White Point field. Loc.
Yoakum & Gorman's No. 1 P. C. Nicks, Sh. 9, Casa Blanca gr. Drlg. sh. 4,890 ft.

Refugio County

C. L. Norsworthy's No. 1 T. C. Holeman, M. Reiley Sur. T.D. 2,260 ft.; well blew out.

San Patricio County

L. L. Smith's No. 1 Timon, Town Tr. of San Patricio de Hibernia. S.D. 6,049 ft.

Starr County

Glen Harroun's No. 1 Green & Manning, Juan J. Garza Falcon Porc. 81. T.D. 2,036 ft.; fsg.
Lynes & Robertson's No. 1 Villareal, C. C.S.D.&G.N.R.R. Sur. 241. Loc.
Magnolia Pet. Co.'s No. 3 Guerra, Santa Cruz gr. (La Reforma field). Loc.
Sun Oil Co.'s No. 1 W. G. Lehr, C.C.S.D. R.G.N.G.R.R. Sur. Cg. sh. 5,433 ft.
Sun Oil Co.'s No. 1 Rodriguez, Santa Teresa gr. T.D. 7,502 ft.; perf. csg. 6,433-37½ ft.; rec. S.W.; S.O.; tstg.
Syndicate Oil Corp.'s No. 1 Sanchez, Santos Sanchez Sur. 344. T.D. 1,004 ft.

Travis County

J. H. Sprouls and A. G. Hinn's No. 1 A. D. Balm, Santiago de Valle gr. Drlg. 1,190 ft.
J. C. Tittle's No. 1 Darlington, Buckman Sur. 40. T.D. 850 ft.; abd.

Val Verde County

Joiner Oil Co. et al's No. 1 Clyde Sellers. T.D. 1,848 ft.; S.D.

Victoria County

John Blaffer et al's No. 1 Edwards, D. Mira Sur. T.D. 6,265 ft.; abd.
British American Oil Co.'s No. 1 J. J. Warden, E. McDonough Sur. 10¾-in. csg. 505 ft.
Colton & Colton's No. 1 Terrell, J. B. Sideck Sur. Drlg. sh. 4,190 ft.
Humble O. & R. Co.'s No. 1 R. H. Welder, S.A.&M.G. Sur. 9. T.D. 5,905 ft.; abd.
S. J. Ryan's No. 1 Bankers Mortgage Co., A. Esparza Sur., Lot 1, Blk. 2. 10¾-in. csg. 601 ft.; drlg. sd. 3,858 ft.
Geo. Smith's No. 1 Reiman, M. Zepeda Sur. Drk.
Texas Gulf Prod. Co.'s No. 1 Kester, C. M. Creanor Sur. T.D. 6,881 ft.; perf. csg. 5,883-85 ft.; flwg. 1¼ B.F.P.H.; 7/64-in. ck.; 10% S.W.

Webb County

H. E. Hall's No. 1 Slator, Mission Oil Co., J. V. Borrego gr. T.D. 100 ft.
M. L. Massingill's No. 2 Kirkpatrick, C. C.S.D.&R.G.N.G. Sur. 59. Loc.
Sinclair Prairie Oil Co.'s No. 1 Callaghan Ld. & Cattle Co., B.S.&F. Sur. 585. 13⅜-in. csg. 1,598 ft.; drlg. sh. 8,991 ft.
Tide Water Asso. Oil Co.'s No. 8 Bruni, M. Arispe gr.; (deep test, Bruni field). Loc.

Williamson County

Jas. Criswell's No. 1 R. Z. Baker, Theophilis W. Metcalf Sur. Drlg. 163 ft.
C. C. Lanier's No. 1 Guental, Harry Cooke Sur. R.U.
C. D. Lane's No. 1 Krieg, H.T.&B. Sur. 3. Drlg. L. 1,410 ft.
Richardson & Lefors' No. 1 Kutzschbach, P. J. Mahan Sur. 115. Drlg. clk. 665 ft.

Wilson County

W. D. Moore et al's No. 1 Lorenz, Morris May Sur. S.D. 75 ft.

Zapata County

Jack Giblin et al's No. 1 Haynes, Villa gr. Loc.
J. P. Martin et al's No. 1 Serapio Vela, El Grullo gr. T.D. 3,500 ft.; P.B. 2,843 ft.; perf. csg. 2,375-2,400 ft.; swbd fresh wtr.; S.D.

Zavala County

H. F. Wilcox O. & G. Co.'s No. 6 Gilliam, Pedro Mesa Sur. 12. Drlg. sh. 1,400 ft.
W. H. Holland et al's No. 1 Cuellar, J. M. Cuellar Sur. 248. Loc.

WEST TEXAS WILDCATS

Andrews County

Helmerich & Payne, Inc.'s No. 1 University, Sec. 11, Blk. 11, University Sur.; 5,500-ft. test. S.D. csg. 4,273 ft.
Illinois Oil Co.'s No. 1 University, Sec 14, Blk. 12, Univ. Sur. Drlg. 5,480 ft.

Concho County

Floyd Dodson's No. 1 Wilson, Thomas Green Sur. 1; 3,500-ft. test. S.D. 3,182 ft.

Crane County

Gulf Oil Corp.'s No. 5 M. B. McKnight. Sec. 1, Blk. 21-B, P.S.L. Sur. Rng. 7-in. 6,404 ft.
Gulf Oil Corp.'s No. 1-F University, SE SE Sec. 22, Blk. 31, Univ. Sur. C.&P.
Gulf Oil Corp.'s No. 1-K University, 330 ft. N and E lines, Sec. 2, Blk. 31, University Sur. S.D.O. 3,424 ft.
Gulf Oil Corp.'s No. 12 Waddell, Sec. 30, Blk. 26-B, P.S.L. Sur. 12-in. 532 ft. S.O. 3,215-20 ft.; S.S.G. 3,635 ft.; 8-in. csg. cmtd. 3,713 ft.; S.O. wtr. 3,763 ft. tstg. 3,780 ft., mostly wtr.; tstg. wtr. shutoff 3,875 ft.
Gulf Oil Corp.'s No. 31 Waddell, Sec. 5, Blk. 24-B, P.S.L. Sur. Drlg. 2,390 ft.

Crockett County

Continental Oil Co.'s No. 3 Todd unit, Sec. 29, Blk. WX, G.C.&S.F. Sur., E offset to discovery well. Top crinoids 5,735 ft.; W.O.C. 7-in. at 5,754 ft.
Finance Oil Co.'s No. 1 Hoover, NW cor. SE Sec. 10, Blk. 1, G.C.&S.F. Sur. Loc.
Lewis & Shannon's No. 1 Noelke, SW cor. NE Sec. 30, Blk. GG, H.E.W.T. Sur. R.U. spdr.
M. & M. Drlg. Co.'s No. 1 G. Bouscaren, SE cor. NW Sec. 29, Blk. G.G., H.E.& W.T. Sur., 1 mi. N of Soma discovery well; straightening hole 500 ft.
Mauldin & Solmon's No. 1 Noelke, SE cor. Sec. 56, Blk. G.G., H.E.&W.T. Sur., ¾ mi. NW of Soma discovery well. R.U.M.
Moore Explin. Co.'s No. 1 A. C. Hoover. Sec. 16, Blk. 1, G.C.&S.F. Sur. C.O. cavings at 353 ft.
Moore Explin. Co.'s No. 1 Noelke, Sec. 10, Blk. G.G. S.D. 2,156 ft.
Soma O. & G. Synd.'s No. 1 W. T. Noelke, NW part Sec. 30, Blk. GG, H E.&W.T. Sur. Hit sat. at 1,035 ft.; 60 B.P.H. with 40,000,000 cu. ft. gas; bldg. storage; est. 50,000,000 cu. ft. gas and only spray oil; tstg. est. 20 bbl. oil hour.

Dawson County

Ray Albaugh's No. 2 Robinson, NW NW Sec. 54, Blk. M, E.L.R.R. Sur. Drlg. 3,865 ft.

Ector County

Everts Drlg. Co.'s No. 1 J. L. Johnson, Sec. 30, Blk. 43, Twp. 1s, T.&P. Sur. Drlg. 3,920 ft.
M. A. Grisham et al's No. 1 R. B. Cowden, 600 ft. from N and E lines, Sec. 4, Blk. 45, Twp. 1n (deep test), T.&P. R.R. Sur. P.B. 4,490 ft.; T.D. 6,090 ft., made 42 bbl. oil in 5 hours after acid; tstg.

Gaines County

Richmond Drlg. Co. et al's No. 1 G. R. Brumley, NE NE Sec. 17, Blk. 12-A, P.S.L. Sur. R.U.R.

Hockley County

Denver Prod. & Ref. Co. and Helmerich & Payne, Inc.'s No. 1 Whiteface Farms, 660 ft. from S and E lines Labor 22, Lgt. 77, Reeves C.S.L. Sur. Had 72 ft. of sat.; drld. plug and found no shows T.D. 4,796 ft.; tstd. sulf. wtr.; D.P. stk. 4,794 ft.

Hudspeth County

Haymon Krupp Oil & Ld. Co.'s No. 1 Briggs, Sec. 24, Blk. 73, Twp. 7, T.&P. Sur. Taking electrical survey 6,172 ft.

Mitchell County

Ewing & Hanes' No. 1 G. I. Grable, Sec. 195, Blk. 3, H.&G.N. Sur.; 1,800-ft test. Drlg. 1,532 ft.
N. V. Hilburn's No. 1 B. W. Jackson, NE cor. NW Sec. 82, Blk. 97, H.&T.C. Sur., in same section as No. 1 Strain. S.D. 50 ft.
N. V. Hilburn's No. 1 E. T. Strain, Sec 82, Blk. 97, H.&T.C. Sur. S.D.O. 1,790 ft.; drld. sat. 1,706-32 ft. and 1,736-39 ft.; est. 4 B.O.P.D. naturally; U.R. 7-in. 1,790 ft.

Pecos County

B. McCandless and General Crude Oil Co.'s No. 1 Virginia W. Crockett, Sec. 5, Blk. 110, T.C.R.R. Sur., T. Ellenburger 4,401 ft.; tstg. est. 6,000,000 cu. ft. gas after acd.; rng. tbg.; T.D. 4,479 ft. est. 4,000,000 cu. ft. gas and 365 B.O. P.D.; made 531 B.O. in 5 hrs.; S.I.
H. H. Sides' No. 1 Blackstone-Slaughter, Sec. 29, Blk. 129, T.&St.L. Sur., 1,050 ft. W. 250 ft. S lines of section. Drlg. 795 ft.

Reeves County

Roy Johnson's No. 1 H. L. Perkins. Rng. 12½-in. at 415 ft.

Scurry County

Coffield & Guthrie, Inc.'s No. 1 J. W. Moar, Sec. 334, Blk. 97, H.&G.N. Sur., NW Sec.; 4,500-ft. test. Drlg. 2,633 ft.

Stonewall County

Shell Oil Co., Inc.'s No. 1 Smith, Sec 143, Blk. 1, H.&T.C. Sur. Top Mississippian at 6,007 ft., top saturation at 6,015 ft. and drilled to T.D. 6,028 ft. in saturation; flwd. 280 bbl. oil in 24 hrs.; prep. cmt. csg. for test.

Terrell County

E. M. Thomasson's No. 2 Bates, Sec. 30 Blk. 1, I.&G.N. Sur. Rng. 7-in. 1,470 ft.

Terry County

Denver Prod. & Ref. Co.'s No. 1 Ima Lewis, SE SE Sec. 62, Blk. DD, J. H. Gibson Sur. W.O.R. 165 ft.
Geo. P. Livermore's No. 1 M. E. Jacoboson, Sec. 6, Blk. 11-D, C.&M. Sur T.D. 5,030 ft.; prep. to drill in; T. sat 4,992 ft.; making 25 B.P.H. after 2,500 gal. acd.; S.I. after acid; made 96 bbl. in 3 hrs.
J. M. Welborn's No. 1 W. E. Bailey, NW NW Sec. 103, Blk. 4-A, C.M.&R.R. Sur., 5,400-ft. test. Loc.

Tom Green County

B. C. Mann's No. 1 Joe Funk, 330 ft. N, 1,650 ft. E lines, Sec. 34, Blk. 5, H.& T.C. Sur. U.R. at 1,370 ft.; prep. P.B.; T.D. 1,562 ft.; H.F.W.; prep. P.B. 1,237 ft.
Dan Short's No. 1 J. G. Davidson, 2,161 ft. from SL, 2,493 ft. from NW cor. L. P. Moore Sur. S.S.O.&G. 2,660-65 ft.; S.D. 3,325 ft.

Upton County

B. C. & D. Dev. Co.'s No. 1 Richard Owens, NE NW Sec. 91, Blk. Y, G.C. &S.F. Sur. S.P. and S.D. to R.U.R.

Ward County

Atlantic Ref. Co.'s No. 1 Wickett-University, Sec. 12, Blk. 16, University Lds. Sur., 1,980 ft. N and E lines of section. Prep. D.D. 2,733 ft.; S.S.O. 2,570-2,677 ft.; est. 380,000 cu. ft. gas; flwd. 30 to 40 bbl. oil hourly 2,892 to 2,907 ft.; tstg.
Gulf Oil Corp.'s No. 5 Wristen, Sec. 13, Blk. 5, H.&T.C. Sur.; scheduled Ordovician test. Drlg. 6,973 ft.
Kenneth Slack's No. 1 Bird Hayes, Sec. 148, Blk. 34, H.&T.C. Sur. T. Delaware 5,003 ft.; S.D. 5,010 ft.; T. Dela. sd. and hit est. 15,000,000 cu. ft. gas at 5,050 ft. and gas ignited; making 10,000,000 cu. ft. gas daily; under control; fire put out; R.U. mch. to D.D.; 5,063-ft. test; rng. 7-in. 5,064 ft.

E. C. TEXAS WILDCATS

Anderson County

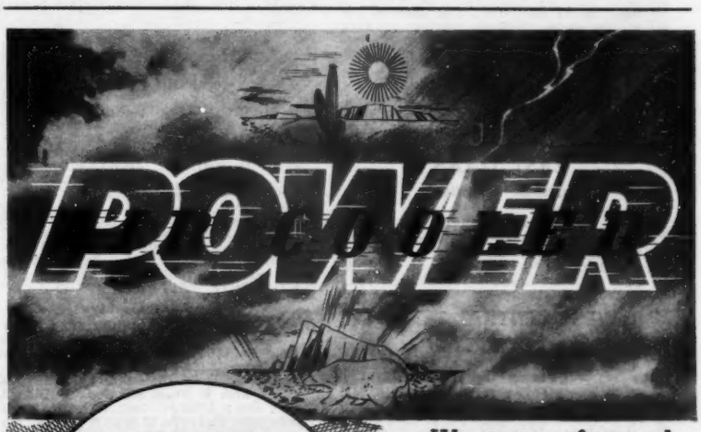
R. H. Williamson's No. 1 O. G. Rogers, Wm. Greenwood Sur., 6 mi. SW of Elkhart. Had gas blowout 4,380-90 ft.; under control; est. 30,000,000 cu. ft. gas; flwg. through separator 5,407 ft. making 125 bbl. dist. dly.; made 467 bbl. dist. in 7 days; tstg.

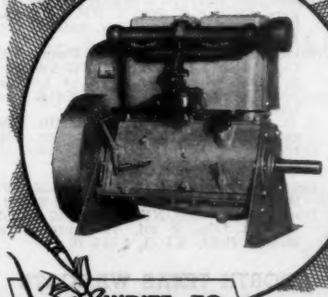
Angelina County

Arkansas Fuel Oil Co.'s No. 1 Carter-Kelly, T.&N.O. Sur. 4. Loc.
K. L. McHenry's No. 1 Redditt-Fairchilds, 2,700 ft. S and 1,200 ft. E lines of T.&N.O. Sur., 10 mi. SE of Copestown. Drlg. 1,325 ft.

Camp County

W. C. McGlothlin's No. 1 Venters, S. Wright Sur., 3 mi. SE Leesburg. R.U. to D.D. to Pett. zone; prep. set csg. to test show in Pett. L. 7,943-90 ft.; had 47 ft. of sat. and por.; S.D. for title trouble at 8,087 ft.; well has not been opened.

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Fannin County

Mrs. A. B. Powell's No. 1 Maude Barker, T. Harrison Sur., 9 mi. N of Bonham, SE cor. 42-ac. tr. S.D. 65 ft.

Freestone County

C F. W. Young's No. 1 Ray Simmons, M. DeCantona Sur., 1½ mi. W of Simmsboro. Drlg. 3,270 ft.

Gregg County

Roger Lacy's No. 1 Lacy, S. P. Ford Sur., 3 mi. SW of Longview; deep Trinity gas test. Drlg. 7,127 ft.

Houston County

Elmer Hay, Tr.'s No. 1 Starr Pope, J. Forbes Sur., 2 mi. S of Lovelady, NW cor. 162-ac. tr. Drlg. 210 ft.

Kaufman County

W. H. McGee's No. 1 Rutland Saving Bnk., John Baker Sur., 2¼ mi. NE of Tulosa. Rng. csg. 3,114 ft. (tight well).

T. G. Shaw, Tr.'s No. 1 Angus Wynne, B. S. Newman Sur., 8 mi. E. Kaufman. lower Trinity test. Drlg. 5,219 ft.

Nacogdoches County

Melrose Oil Co.'s No. 1 C. N. Wilson, J. Hall Sur., 10 mi. SE of Nacogdoches. Swbg. fresh wtr.; S.S.O. 2,329 ft.

Robertson County

Rhett Wilder's No. 1 Moise Cerf, J. Erwin Sur., 7 mi. S of Franklin. S.D.O. 1,611 ft.

Rusk County

Jeff Bolton's No. 1 Hall Wood, J. I. Sanches Sur., 2½ mi. NW of New Salem. Lost circ. and skd. rig to start new hole; T. Wdbne. with sat. at 4,145 ft.; S.S.O. 4,201 ft.; showing small amt. gas between surf. csg. and oil string; S.D.O. 4,201 ft.

J. S. Harrell's No. 1 Citizens Natl. Bnk., M. C. Carmell Sur., 2½ mi. SE Henderson. O.W.D.D.; R.U. to dpn. below 6,802 ft.; conditioning hole 3,300 ft.

A. O. Whittington's No. 1 Kangerga Bros., Ign. Castro Sur., 9½ mi. N and slightly E of Pirtle. Drlg. 3,000 ft.

Smith County

Carmerson Corp.'s No. 1 T. Simpson, R. Walter Sur., 3 mi. NE of Winona, SE cor. of 1,234-ac. tr. Drlg. 2,430 ft.

Sun Oil Co.'s No. 1 E. B. Huddle, Wm. Dickerson Sur., 2 mi. S of discovery dist. producer in Chapel Hill area; third D.S.T. failed; may test again or may P.B. to Glen Rose L.; sat. drld. from 7,983-8,019 ft.; T. Pett. 7,930 ft.; T. Tr. Pk. 8,090 ft.; tstg.; T.D. 8,226 ft.; est. 5 B.O. with wash wtr.; prep. drill plug at 8,226 ft.; P.B. 8,183 ft.; making 25 bbl. dist. and 250,000 cu. ft. gas daily, Rodessa section; making 125 bbl. dist. and 3,000,000 cu. ft. gas daily; made 103.93 bbl. dist. in 24 hrs.

Van Zandt County

J B. Daniels' No. 1 W. R. Odom, J. Garcia Sur., 4 mi. NE of Mabank. S.D.O. 3,878 ft.

EAST TEXAS

(Border Counties)

Harrison County

Ark. La. Gas Co.'s No. 1 Isaac, Little Sur. Drlg. 4,265 ft.

J. A. Hughes' No. 1 Taylor, H. McNutt Sur. T.D. 2,612 ft.; W.O.S.R.

WEST CENTRAL TEXAS DISTRICT

Brown County

J. J. Poteet's No. 1 R. L. Williams, NE NE, J. F. Roberts Sur. 470. Drlg. 145 ft.

C. H. Robertson's No. 1 McGary & Gibbs, 160-ac. tr. in middle Sec. 1, H.T.&B. Sur. S.D.R. 730 ft.

M. R. Staurd's No. 1 E. Hennigan. NW M.E.P&P. Sur.; 1,000-ft. test. C.O. after acid 961-76 ft.

Callahan County

E. Johnson's No. 3 M. Hughes, SE cor. NE NE Sec. 127, B.B.B.&C. Sur. Drlg. 360 ft.

C. J. Kleiner's No. 1 R. D. Williams, 183 ft. N, 2,631 ft. E of N and E lines, Sec. 62, B.O.A. Sur.; 1,200-ft. test. Drlg. 1,080 ft.

W. Lee's No. 1 H. W. Ross, 2,420 ft. W, 1,540 ft. S lines, Sec. 98, B.B.B.&C Sur. S.D.; may plug 1,705 ft.

C. A. Redmond's No. 1 H. T. Moore, SE cor. NE Sec. 9, Blk. 6, S.P. Sur.; 2,000-ft. test. S.D. 1,930 ft.

Coleman County

Anzac Oil Corp.'s No. 1 McCord, 2,200 ft. E, 2,196 ft. S of B.B.B.&C. Sur. S.D.R. 1,799 ft.

J. W. Quinn, Tr.'s No. 1 Duty & Stevens, SE cor. Sec. 25, H.T.&B. Sur.; 1,800-ft. test. Drlg. 1,050 ft.

Robertson & Bradford's No. 1 Morris, 330 ft. N, 1,582 ft. W lines, Blk. 2, G.H.&H. Sur. Prep. test; Gardner sd. topped at 3,530 ft. with sat.; awaiting official ga.; making about 6,000,000 to 7,000,000 cu. ft. gas daily with no oil; gaged only gas, 5,750,000 cu. ft.; S.I. 3,566 ft.

Comanche County

H. S. Bassart's No. 1 J. H. Tate, NW cor. J. M. Robinson Sur., Abst. 1170; 900-ft. test. S.D.O. 748 ft.

Coryell County

Kistler O. & G. Co.'s No. 1 Barnes, 360 ft. SE line, 3,700 ft. NE line of H. Farley Sur., 3 mi. NE of Gatesville; 2,500-ft. test. Drlg. 825 ft.

Eastland County

Burton-Womach's No. 1 J. T. Collins, NE NW Sec. 11, Blk. 1, H.&T.C. Sur.; Ellenburger lime test. Loc.

Dobbs Oil Corp.'s No. 1 Mrs. R. L. Poe, 1,320 ft. from S and E lines, of SE¼ Sec. 37, Blk. 3, H.&T.C. Sur. Drlg. 922 ft.

Dobbs Oil Corp.'s No. 1 Thomasson, S. H. Key Sur., 330 ft. from N. 846 ft. from E line of 80-ac. tr. S.D.O. 1,155 ft.

Steele & Black's No. 1 B. B. Poe, 150 ft. N and E lines, SE¼ Sec. 6, Blk. 2, H.&T.C. Sur.; 900-ft. test. Drlg. 200 ft.

Hamilton County

A. J. Caldwell's No. 1 W. W. Jones, 1,002 ft. from NE, 150 ft. from SE lines of W. H. Crowder Sur. Drlg. 2,610 ft.

Wallace & Wallace's No. 2 C. E. Lund, C S½ E 20 ac., N½ SW¼, R. J. Bailey Sur. 51. Csg. 300 ft.; S.D. csg. 3,265 ft.; T. Marble Falls 3,245 ft.; drlg. 3,404 ft.

Jones County

Fain-McGaha Oil Corp. and Ungren & Frazier's No. 1 W. G. Swenson, J. McGrew Sur. 245; 2,650 ft. test. Loc.

J. E. Farrell's No. 1 F. B. Reid, NW¼ Sec. 31, D.&D. Sur.; 3,500-ft. test, T.D. 2,429 ft.; comp. for new discovery for 20 to 30 B.P.D. from L. at 2,568-70 ft. making 12 to 15 B.P.D.; tstg.

J. C. Hunter's No. 1 J. Sayles, SE N½ Subd. 8, R. Smith Sur. 192, just NE of Hawley; 3,300-ft. test. R.U.M.

Jones & Stasney's No. 1 B. C. Humphrey, SE cor. SW Sec. 192, B.B.B.&C. Sur. 1 mi. N of Avoca field. S.D.O. 3,358 ft.

Keeler's No. 1 Radford, SE¼ Sec. 20, Blk. 4, H.&T.C.R.R. Sur. S.D.O. 1,880 ft.

W. I. Southern's No. 1 A. A. Hayden, G. Martinez Sur., S of Anson on west side of Prichard pool; 4,000-ft. test. C.O. after acd. 2,488 ft.; only wtr.; drlg. 2,510 ft.

Parker County

Brown & Gardner Bros.' No. 1 Gilbert. T.&P. Sur., Abst. 1958. Tstg. gas; C.O. 100 ft. off bottom; T.D. 3,905 ft.

Runnels County

Davis' No. 1 Summers, W½ of tr. in Day Ld. & Cattle Co. Sur., W of Beddo field. H.F. S.W.; may P.B.; S.D.O. 3,624 ft.

Shackelford County

John E. Carson's No. 1 R. A. Elliott, 660 ft. S and E lines, Sec. 48, B.A.L. Sur.; 3,650-ft. test. Drlg. 591 ft.

Georgian Oil Corp.'s No. 1 Black ranch, C NE¼ of T.E.&L. Sur. 300, 10 mi. NE of Albany; Ordovician test. T.D. 4,825 ft.; P.B. to Caddo L. for test at 3,860-3,915 ft.; T. Ellenburger 4,730 ft.; P.B. 3,915 ft.; prep. acidize.

F. N. Palm's No. 1 M. E. Daniels, SW cor. NE Sec. 16, E.T.R.R. Sur., 800-ft. test. Loc.

R. H. Roark and L. F. Hooker's No. 1 B. S. Walker, southern cor. of Sec. 377, T.E.&L. Sur., 600-ft. test. Drlg. 100 ft.

Swann & Gorsuch's No. 1 Sam Lazarus, SE SE Sec. 80, Blk. 13, T.&P. Sur. S.D.; S.S.O. 1,514-17 ft.

Stephens County

Guy Ewing's No. 1 Crudington, SE cor. T.E.&L. Sur. 1268, 5½ mi. S of Stribling field. W.O.C. at 3,361 ft.; show oil from 3,362-64 ft., T.D.

Jones Bros. Drlg. Co.'s No. 1 T.X.L., 660 ft. N and E lines SE Sec. 3, Blk. 3, S.P. Sur.; 4,050-ft. test. Drlg. 3,450 ft.

Panhandle Ref. Co.'s No. 1 Frank Magers, SE Sec. 1, Blk. 3, S.P. Sur., 1¾ mi. N of Fagg area. Fsg. baller 3,950 ft.

Pitzer & West and Brazos-Young Oil Corp.'s No. 1 H. Compton, SW SW Sec. 9, O.A.L. Sur., 1 mi. SE of Loving pool; 3,600-ft. test. S.D. 3,536 ft., no test.

J. R. Tolbert's No. 1 W. L. Martin, NW cor. NE¼ Blk. 1335, T.E.&L. Sur., 1½ mi. SW of Fagg area. Drlg. 1,400 ft.

Taylor County

Green & Owens' No. 1 J. Bettes, R. Ortiz Sur. 19; 2,500-ft. test. Fsg. 1,390 ft.

Hose's No. 1 Bond, NE NE Sec. 40, Blind Asylum Lds., 2 mi. SW outpost to Bowles field. S.D.O. 4,715 ft.

NORTH TEXAS WILDCATS

W H. Gant's No. 1 A. Vogtsberger, Sec. 3, G. E. Co. A-146 Sur.; 5,200-ft. test. O.S. 4,659-71 ft.; L.S.O. 5,257-69 (cd.) ft.; cmtd. 6⅝-in. at 4,651 ft.

E. F. Scott's No. 1 York, SE cor. SW¼ Sec. 1861, T.E.&L. Sur. Prep. drl. plg.

Baylor County

Paul B. Scott et al's No. 1 C. H. Farr, Sec. 228, T.&N.O. Sur.; 3,100 ft. test. Drlg. 2,490 ft.

Clay County

L. T. Burns' No. 1 Tom Watson, Sec. 2631, T.E.T. Sur.; (3½ mi. SE Shell's Henderson discovery). Set 100 ft. 10-in.; W.O.C.

Alexander Goldsmith's No. 1 Republic Nat. Gas Co., 312 ft. N, 495 ft. W lines of Blk. 14, Parker Co. Sch. Ld. Sur., 1 mi. S of town of Petrolia; 4,500-ft. test. 6⅝-in. 2,402 ft.; perf. csg. 1,600-10 ft.; C.O.

Shell Oil Co., Inc.'s No. 1 Davis, Sec. 93, J. H. Belcher Sur. O.W.D.D.; L.S.O. 5,687-5,720 ft.; T.D. 6,012 ft.; ran elec. survey and S.D.O.

Staley Oil Co.'s No. 1 D. J. Percifield, Sec. 37, Belcher subd.; 5,000-ft. test. S.S.O. 5,260-72 ft.; S.D.O.

Cooke County

Cranfill & Staley's No. 1 S. H. Peery, SW B.B.B.&C. Sur., Abst. 145. S.D. 2,505 ft.

Tolbert & Rutledge's No. 1 H. W. Stark, 330 ft. from W and 466 ft. from S lines of SE¼ of D. C. Hudson Sur. Loc.

Denton County

Shooks & Finnell's No. 1 Sanders, Noling Sur., 5⅛-in. 1,995 ft.; drlg. plug; sat. L 2,013-45 ft.; acd. 1,000 gal.; shot 50 qt.; no results; S.D.O.

Foard County

Domain Oil Co.'s No. 1 Wilson, Marshall Univ. Sur. Drlg. 3,800 ft.

Hardeman County

Norris & Gilbert's No. 1 Robert Weekley, SW SE Sec. 87, Blk. 16, H.&T.C. Sur. T.D. 3,155 ft.; S.D.O.

Jack County

Continental Oil Co.'s No. 1 M. Hoofle, A. James Sur., Abst. 318, 3 mi. S Antelope, 3,500-ft. test. Loc.

Noah Daves' No. 1 K. D. Baker, Sec. 2709, T.E.&L. Sur. Fsg. 3,166 ft.

Harper Pet. Co.'s No. 1 F. V. Vanhooser, J. F. Lewis Sur. Loc.

Steel & Cooper's No. 1 C. S. Stewart, 1,398 ft. from E and 466 ft. from S lines of J. H. Nessmith Sur. Cmtd. 6⅝-in. csg. 2,896 ft.; S.S.O. 2,911 ft. to 2,932 ft.; tstg.

Montague County

British Am. O. P. Co.'s No. 1 J. A. Martin, Sec. 27, H.&T.C. Sur.; 6,000-ft. test. Drlg. 5,105 ft.

Seitz, Comegy & Seitz' No. 1 King, 1,903 ft. W, 330 ft. N lines of SE¼ E. B. Wooten Sur., Abst. 480. S.D.O. 4,012 ft.

W. H. Gant and Continental's No. 1 J. L. Brown, Sec. 58, E.T.R.R. Sur. 6⅝-in. 6,843 ft.; brkn. sdy. L. S.O. 6,843 ft.; treat. 8,000 gal. acd.; test showed O.& G. 7,036-56 ft.; T.D. 7,333 ft.; rng. 5⅛-in. lnr. 6,843-7,333 ft.; fsg. swb. and 5,900-ft. line; set retainer 6,500 ft.; perf. 52 shots 6,000-6,400 ft.; shot 10 qt. 6,470-80 ft.; no results; shot 20 qt. 6,300-10 ft.; 1,000 ft. mud, no oil; set plug 6,080 ft.; tstg.; re-treated 6,000 gal. acid; well kicked off and flowed in derrick from lime at 6,070-6,145 ft; shut in for several days then open to flow only few bbl. by heads.

Walter Gant's No. 1 J. W. Robinson, Sec. 55, M.E.P.&P. Sur. Cmtd. 5⅛-in. csg. at 4,130 ft.; perf. with 30 shots from 4,030-45 ft.; H.F.W.; S.D.O.

Harvey Drlg. Co. et al's No. 1 D. A. Threadgill, Sec. 10, Jack Co. Sch. Ld. Sur. A-390; 6,000-ft. test. Drlg. 3,425 ft.

Ramsey Pet. Corp.'s No. 1 W. H. Magee, A. C. Davis Sur., just outside of town of Montague. Cored sat. 6,260-76 ft., made only 300 ft. S.W. on test; drlg. deeper below 6,280 ft.

Sinclair Prairie Oil Co.'s No. 1 David Doty, J. H. Jones Sur., Abst. 396; (W offset to discovery). T. Ellenburger 5,820 ft.; S.O. in granite wash 5,638-62 ft.; set 6⅝-in. at 5,825 ft.; D.S.T. 5,548-83 ft. recov. 915 ft. oil-cut mud; W.O.C. at T.D. 6,025 ft.

Sinclair Prairie Oil Co.'s No. 2 A. P. Howard, W. Wallace Sur, Abst 841. W.O.C. 6⅝-in. at 5,912 ft.

Sinclair Prairie Oil Co.'s No. 1 G. Whaley, SW cor. of N½ of T. R. Jackson Sur., Abst. 394 (6,000-ft. test). R.U.R.

Tarrant County

W. L. Cox's No. 1 N. H. Poole, 160 ft. from S and W lines of J. McDonald Sur. Loc.

Wilbarger County

Amerada Pet. Corp.'s No. 1 B. Goodpasture, Sec. 35, H.&T.C. Sur., Blk. 15 8,000-ft. test. Sat. lime 4,407-20 ft.; 600 ft. oil and 150 ft. mud on 60-min. D.S.T.; Drlg. 5,698 ft.

O. M. Stidham & Son's No. 1 C. D. Watts, Sec. 64, H.&T.C. Sur., Blk. 15.; 6,000-ft. test. S.P. and S.D.

Young County

Commodore Oil Co.'s No. 1 Clinton Realty Co., Sec. 2384, T.E.&L. Sur. Drlg. 892 ft.

K. R. March's No. 1 Ed Burton, NE cor. Blk. 99, J. A. True Sur., Abst. 1640, 4 mi. SE Graham; 4,250-ft. test. 4,500 gal. acid 3,952-4,014 ft.; 1,800 ft. O.I.H.; testing.

E. F. Scott's No. 1 C. Beatty, 150 ft. from N and W lines of 80-ac. lease in Sec. 1184, T.E.&L. Sur. Drlg. 750 ft.

A. T. Strong No. 1 Craig heirs, N. Lynch Sur. Drlg. 1,540 ft.

Trentman Oil Co.'s No. 1 J. N. Hall, 1,840 ft. from N and 1,440 ft. from W lines of Sec. 1996, T.E.&L. Sur. Loc.

TEXAS PANHANDLE

Hutchinson County

Jake Phillips' No. 1 McCloy, Sec. 101, Blk. 5-T, T.&N.O. Sur. Hole filled 2,000 ft. with oil; tstg.

Ochiltree County

James R. Macon et al's No. 1 W. R. Norris, SW SE Sec. 212, Blk. 48, H.&T.C. Sur. T.D. 6,274 ft.; test sec. at 5,000 ft.; est. 6,000,000 cu. ft. gas on D.S.T.; tstg.; bailing 6,274 ft.; csg. cmt. at 5,000 ft.; R.U. control head for testing at est. 6,000,000 cu. ft. gas; plug drilled; tstg. wtr. shutoff.

Sherman County

I.T.I.O. Co.'s No. 1 S. C. Bryant, C NW¼ Sec. 369, Blk. T-1, T.&N.O. Sur. Prep. D.D. below 4,200 ft.

MISSISSIPPI

Attala County

F. R. Jackson's No. 1 Federal Land Bank, 410 ft. S, 620 ft. E NW cor. NW SE Sec. 29-16n-9e. Drlg. bl. sh. 4,397 ft.

Kosciusko Oil Co.'s No. 1 Jones. 600 ft. NW cor. Sec. 5-15n-9e. Loc. temp. abd.

P. & M. Oil Co.'s No. 1 J. A. McMillin, 300 ft. SW cor. SE SE Sec. 26-13n-5e. Spd. to 25 ft.; M.I. rig.

Clarke County

Ark.-Miss. Oil Co.'s No. 1 Long Bell, C SW NE Sec. 35-3n-17e. Spdg.

Copiah County

G. C. Koch's (former Triangle Drilling Co.) No. 1 W. W. Broome, 153 ft. SW cor. SW SE Sec. 1-10n-8e. S.D. 3,541 ft. (cor.).

Grenada County

Ed Spencer's No. 1 Gillon, Sec. 17-22n-7e. Spdd.; S.D. 360 ft.; M.I. rig.

Hinds County

Royal Oil & Gas Co. et al's No. 1 Hinds County Land, NE SW NE Sec. 33-5n-2w. Drlg. hd. sdy. L. 6,493 ft.

Holmes County

Exchange Oil Co.'s No. 1 B. Russell, NE cor. NE SE Sec. 32-15n-2e. Set 10¾-in. csg. 665 ft.; drlg. sdy. sh. 4,943 ft.

Exchange Oil Co.'s No. 1 W. M. Thurmond, C NW NW SE Sec. 21-15n-3e. Spdg.

L. A. Hawkins' No. 1 B. W. Humphrey, 1,980 ft. S, 330 ft. W NE cor. Sec. 33-13n-2e. R.U.

Hawkins & Howell's (A. C. Varner's) No. 1 P. S. Jones, Sec. 27-15n-1e. Set 10¾-in. csg. 518 ft.; drlg. 1,721 ft.

A. H. Rowan's No. 1 Eakin, C NW SE Sec. 20-14n-1e. M.I.M.

Rowan Drlg. Co.'s No. 1 Smith, C NW NE Sec. 7-14n-1w. Set 10¾-in. csg. 593 ft.; ch. 4,487 ft.

Scott County

Exchange Oil Co.'s No. 1 Newell, Mineral Lease Co., Inc., 330 ft. NW cor. NE SW Sec. 30-7n-7e. Set 10¾-in. csg. 653 ft.; W.O.C.

E. L. Martin's No. 1 Adams Edgar Lbr. Co., C S½ SE SW Sec. 25-8n-6e. Drlg. 1,521 ft.

Smith County

Haynes B. Owenby Drlg. Co.'s No. 1 State, C SE NE Sec. 6-2n-9e. R.U.

Stone County

H. I. Morgan's No. 1 Dantzler Lbr. Co., NW SE Sec. 8-4s-12w. Drlg. sh. 8,221 ft.

Tallahatchie County

Gulf Ref. Co.'s No. 1 Cason, C NE Sec. 2-21n-2w. Loc.

Washington County

J. E. Green's No. 1 Walter-Goldman, 247 ft. SW cor., SE NW Sec. 23-25n-6e. Drlg. 400 ft.

Hassle Hunt's No. 1 H. A. Lammons, C SE NW Sec. 1-10-3. Set 10¾-in. csg. 425 ft.; S.D. 3,000 ft.; laying wtr. line.

Hill & Hill's No. 1 W. A. Montgomery, C SE SW SE Sec. 24-12n-2e. M.I.M.

Chas. Perkins' No. 1 Gen. American Frams, 2,000 ft. N SE cor. Sec. 9-14n-8w. M.I.M.

Union Prod. Co.'s No. 2-A Friley, C NE SE Sec. 14-10-3. Set 16-in. csg. 57 ft.; drlg. 315 ft.

Union Prod. Co.'s No. 2 Twiner, C NW NW Sec. 1-10-3. R.U.

Union Prod. Co.'s No. 7 Woodruff, C SE SE 13-10-3. Set 10¾-in. csg. 602 ft.; W.O.C. 1,308 ft.

Wayne County

Hill & Hill and W. L. Stewart's No. 1 Kalmia Realty Co., C SW NW Sec. 5-7n-9w. Set 16-in. csg. 30 ft., spd. mch.; sd. 1,270-75 ft.; S. dead oil and slight S.G.; drlg. ch. 5,415 ft.

Yazoo County

Exchange Oil Co.'s No. 1 L. B. Dixon, C SW SW SW Sec. 29-12n-3e. Drlg. sd. 3,207 ft.

Exchange Oil Co.'s No. 2 M. P. Wilburn et al, 330 ft. W, 990 ft. S, NE cor. Sec. 31-12n-3e. Drlg. sh. 2,400 ft.

E. C. Johnston's No. 3-B Brumfield, 423 ft. W, 660 ft. N SE cor. SW NE Sec. 2-10-3. Drlg. bl. sh. 4,350 ft.

Sells Pet. Co.'s No. 1 Falkner, C SE NE Sec. 34-9n-4w. R.U.

Slick-Urschel Oil Co.'s No. 5 T. B. Slick, 660 ft. W, 100 ft. S, NE cor. Sec. 2-10n-3w. T. chalk 4,682 ft.; Woodruff sd. 4,856-80 ft.; set 6-in. csg. 4,853 ft.; flwg. in plts.

Union Prod. Co.'s No. 2 Twiner, C NW SE Sec. 1-10-3. Drlg. sh. 4,243 ft.

Union Prod. Co.'s No. 1-B Woodruff, C SW NW Sec. 18-10-2. Drlg. bl. sh. 4,683 ft.

Fiftieth Oil Well Completed In Tinsley, Mississippi

JACKSON, Miss., May 13.—The fiftieth oil well is being completed in the Tinsley field of Yazoo County early this week, as offset and outpost activity gains in the state's second oil field, Pickens, and wildcatting continues strong without the impetus of recent discoveries or shows. Several wildcats which have been closely watched have encountered sands, in some cases showing slight oil or gas shows, but nothing indicating commercial production.

Tinsley

Slick-Urschel Oil Co.'s No. 5 T. B. Slick has the distinction of being Tinsley's fiftieth oil producer, extending the productive limits ¼ mile north. A 24-ft. section of Woodruff sand is producing the well, not yet gaged.

Wildcats

Failures checked five more wildcats off the active list in Mississippi last week, two of which had been shut down for several weeks. In Clarke County, Arkansas-Mississippi Oil Co.'s No. 1 State, whose productive chances were highly regarded, tested Midway and Tuscaloosa sands with no results, and was abandoned at total depth of 5,012 ft. Reid Clark's No. 1 L. B. Allen, Humphreys County wildcat, drilled through an igneous section from 3,810 to 4,160 ft. and was abandoned without shows at 5,057 ft. In Sharkey County, Eureka Petroleum Co.'s No. 1 W. H. Cooper made a drill-stem test of a sand section at 3,640-70 ft., recovering 120 ft. of drilling mud and a slight show of gas and a little oil, using ¼-in. chokes top and bottom. The shows were not considered enough to set casing, and the hole was abandoned. In Choctaw County Garland Anthony's No. 1 Ballard spudded late last year and shut down, was abandoned at 20 ft. In the Amory gas area of Monroe County Wilmut Gas & Oil Co.'s No. 1 Roberts, shot in a dense sand section showing gas, without appreciable results, was temporarily abandoned and the rig moved to the company's No. 1 Rye test, same county.

New Wildcats

Eight wildcat locations, tests already beginning on some, were announced in Washington, Holmes, Neshoba, Yazoo, Tallahatchie and Yalobusha counties. Most of the tests, as in Mississippi generally, are contracted, and the blocks being drilled vary from small ones on seismograph or gravietymeter prospects to the large Tallahatchie block.

MISSISSIPPI COMPLETIONS

Wildcat—Choctaw County

Garland Anthony's No. 1 Ballard, C NE SE Section 8-18n-10e, dry and abandoned, total depth 20 ft.

Wildcat—Clarke County

Arkansas-Mississippi Oil Co.'s No. 1 State, C SE NE Section 16-2n-16e, dry and abandoned, total depth 5,012 ft.

Wildcat—Humphreys County

Reid Clark's No. 1 L. B. Allen, 800 ft. north, 400 ft. east SW cor. Section 4-13n-4w, dry and abandoned 5,057 ft.

Amory—Monroe County

Wilmut Gas & Oil Co.'s No. 1 Roberts, C NE NE NW Section 18-13s-17w, temporarily abandoned, 2,879 ft.

Wildcat—Sharkey County

Eureka Petroleum Co.'s No. 1 W. H. Cooper, 1,980 ft. south, 660 ft. west of NE cor. Section 13-14n-5w, dry and abandoned, 3,670 ft.

Tinsley—Yazoo County

Hassie Hunt's No. 3 A. G. Johnson, C NW NE Section 14-10-3, pumping 150 bbl., total depth 5,590 ft. Slick-Urschel Oil Co.'s No. 4 T. B. Slick, 440 ft. west, 660 ft. north SE NE Section 2-10-3, Woodruff sand 4,797-4,814 ft., 288 bbl., total depth 4,837 ft. Union Production Co.'s No. 1 Cesana, C NW SW Section 18-10-2, 28 bbl., 14/64-in. choke, casing pressure 285 lb., tubing pressure 215 lb., will install pump, total depth 4,833 ft. Union Producing Co.'s No. 1 A. Partridge, C SW SE Section 1-10-3, 372 bbl., 20/64-in. choke. Woodruff sand 4,852-83 ft., total depth 4,938 ft. Union Producing Co.'s No. 1 J. E. Twiner, C SW NW Section 1-10-3, 448 bbl., 28/64-in. choke.

THE little lady is right if her father is one of the many successful oil operators who bank in Fort Worth. In many instances the resources of Fort Worth Banks have contributed to their success. The loan officers of these banks will be glad to discuss your credit requirements.

THE FIRST NATIONAL BANK
THE FORT WORTH NATIONAL BANK
CONTINENTAL NATIONAL BANK
FORT WORTH

Oklahoma Fields

(Continued from Page 299)

Okfuskee County

Summit Drilling Co.'s No. 6 Steil, SW NE SW Section 18-10-11, West Weleetka area, Okfuskee County, topped sand at 2,172 ft., total depth 2,179 ft. and flowed 150 bbl. of oil in 24 hours.

Same operator's No. 1 Wilder, SE SW SW Section 7-10-11, outpost in West Weleetka area, had Booch sand at 2,430 ft., total depth 2,513 ft., the hole filled with water and it was abandoned.

Parker Drilling Co.'s No. 1 Welty, NW SW NE Section 2-11-8, Dill pool, had Cromwell sand at 3,379 ft., was bottomed at 3,411 ft., shot, and was dry and abandoned.

New operations in Okfuskee County: Moffett's No. 1 Shawneego, NW NW NE Section 25-10-11, location; Wells' No. 4 Scott, SE NW NE Section 25-10-11, drilling below 425 ft.

McClain County

A failure was recorded in the Byars pool, McClain County, at E. H. Moore, Inc.'s No. 1 Midgett, NW NW NW Section 15-5-3e. It found Wilcox sand at 4,290 ft. and was dry and abandoned at 4,324 ft., total depth.

Simpson-Roodhouse Drilling Co.'s No. 1 Norris, NW NE SE Section 9-5-3, had dug cellar and pits. Patsy Oil Co.'s No. 3 Caldwell, NW SE NE Section 16-5-3, set 12-in. casing at 250 ft. and was waiting on cement.

Kay-Garfield Counties

D. W. Malernee's No. 1 Vanselous, C NE SE Section 13-25-1e, wildcat west of the Ponca City area, Kay County, topped Wilcox sand at 4,341 ft., Arbuckle lime 4,547 ft., total depth 4,668 ft., and was dry and abandoned.

Sinclair Prairie Oil Co.'s No. 30 Denker, CNL SE SW Section 13-22-4w, Garber field, Garfield County, had Walker sand at 1,560-85 ft., total depth, and pumped 15 bbl. of oil in 24 hours.

Continental Oil Co.'s No. 12 DeLodge, C SW NW Section 17-25-2e, Kay County, was a location.

Creek County

Martin, Westby & Green's No. 2 Perryman, NW NE NW Section 28-14-10, Creek County, found Dutcher sand at 2,795-2,817 ft., total depth, and swabbed and flowed 105 bbl. of oil in 24 hours, completed.

Bruin Oil Co.'s No. 3 Morton B, twin well, SE NE SW Section 27-14-10, was completed at 3,321 ft., total depth, for 20 bbl. of oil daily.

New work in Creek County: Titus' No. 1 Cloud, SW SE Section 27-14-7, cellar and pits; Bryan Petroleum Co.'s No. 2 Ah-Sey, NW NW NE Section 34-14-7, cellar and pits; Sunray Oil Co.'s No. 1 Evans, NW NE NE Section 34-14-7, machine; Tibbens' No. 1 Yahola, SE SW SE Section 23-15-8, machine.

Okmulgee County

W. R. Staples recently completed his No. 1-A Replogle, SE SE SW Section 31-12-13e, in Okmulgee County, 1,500,000 cu. ft. of gas daily.

W. O. Shock Co. has started work at a second well in the Dutcher sand pool recently opened by the company in western Okmulgee County. The new test, in NE NW SE Section 17-14-11, was drilling below 100 ft. It is a south offset to the discovery, Shock's No. 1 McKee, SE SW NE Section 17, which had Dutcher sand at 2,381 ft. and was completed for initial yield of 6 bbl. of oil an hour. In the same area Deaner and associates were drilling below 300 ft. at a well in SE SE NW Section 17.

Pawnee-Osage Counties

Sample's No. 1 Bellis, NE SW NE Section 28-20-9, Pawnee County, had Red Fork sand at 2,048-90 ft., total depth, was shot and completed for 200 bbl. of oil in 24 hours.

Madelin Norris and others' No. 4 Osage, C W½ NE SW SE Section 15-21-12, Osage County, recently was completed for 15 bbl. of oil daily at total depth of 1,303 ft. Sinclair Prairie Oil Co.'s No. 18 Osage, SE NW NW Section 26-24-10, was bottomed at 1,779 ft., and produced 12 bbl. of oil in 24 hours, initially.

Carter-Jefferson Counties

Magnolia Petroleum Co.'s No. 1-A Hefner, C SW NE Section 27-2s-3w, old well in the Fox area, Carter County, was plugged back from 7,996 ft. to 5,359 ft., perforated casing and acidized, flowing 204 bbl. of oil in 24 hours. Gravity of the oil was 39° at 88°.

John Trout's No. 1-B Trout, SE SE SW Section 19-6s-5w, Jefferson County, was dry and abandoned at 2,087 ft., total depth.

Stephens-Comanche Counties

Winkler & McQueen's No. 1-B Simpson, SW SE SE Section 34-1s-8w, Stephens County, was dry and abandoned at 2,225 ft., total depth. George Pace's No. 16 fee, NW NE NW Section 28-2s-7w, old well in the Comanche field, was deepened from 1,004 ft. to sand at 1,702-9 ft., total depth, and pumped 12 bbl. of oil daily.

Recent completions in the Lawton area, Comanche County: Smith's No. 7 Truitt, NE NW SW SE Section 26-2n-11w, total depth 221 ft., 7 bbl. of oil daily; same operator's No. 8 Truitt, C E½ NW SW SE Section 26-2n-11w, total depth 223 ft., 4 bbl. of oil daily; Truitt's No. 19 fee, NW SW NW SE Section 26-2n-11w, total depth 235 ft., 115,000 cu. ft. of gas daily.

Grady County

T. H. McCasland's No. 1-A White, SW SE SE Section 21-3n-5w, Knox field, Grady County, set 7-in. casing at 2,345 ft., was bottomed at 2,383 ft., and averaged flowing 413 bbl. of oil daily.

Tillman County

Indian Territory Illuminating Oil Co.'s No. 1 Hutton, SW SW SW Section 31-2s-18w, Frederick district, Tillman County, had Canyon lime at 3,211 ft., total depth 3,301 ft., and was completed as a water-disposal well.

Same company's No. 4 Graham, NW NW NE Section 1-3s-19w, an old well, was deepened from 3,113 ft. to Arbuckle lime at 5,036 ft., 5,101 ft., total depth, and flowed 1,662 bbl. of oil in 12 hours through casing. Same company plugged back No. 1 Hatler, SW SW NE Section 32-2s-17w, old well, from 5,169 to 3,407 ft., perforated casing at 3,262-86 ft., and it averaged pumping 90 bbl. of oil and 106 bbl. of water daily.

Daly's No. 1 Bryan, SW SW NW Section 33-2s-17w, was a location.

Jackson County

Henry's No. 1 Henry, NW NW NW Section 15-1n-20w, an old well in the Altus area, Jackson County, was deepened from top of granite wash at 1,519 to 1,524 ft., and flowed 480 bbl. of oil in 24 hours.

Gulf Oil Corp.'s No. 5 Barrett, NE SW SW Section 10-1n-20w, found granite wash at 1,464 ft., total depth 1,485 ft., and pumped 57 bbl. of oil in 24 hours.

Kerbow's No. 3 Danona, SW NE NW Section 6-1s-19w, Tipton area, was drilling below 580 ft.

New Operations

In Hughes County, Betts' No. 1-A well, SE SE SW Section 29-8-9, twin, was a machine.

Oklahoma County: Magnolia Petroleum Co.'s No. 1 well, NW NW NE Section 28-13-1e, building rig; Indian Territory Illuminating Oil Co.'s No. 13 Emerson, NE NW SW Section 30-11-2w, drilling below 670 ft.; Phillips Petroleum Co.'s No. 1 Fulton, SE NE NW Section 34-12-3w, location.

Lincoln County: Summit Drilling Co.'s No. 1 Griggs, NW NE NW Section 7-15-5, rig; Southern's No. 1 Davis, SW NW NW Section 33-16-6, rigging up rotary tools.

Logan County: H. P. Gas Co.'s No. 1 Matherson, SW SW SW Section 34-18-4w, location.

Noble County: Phillips Petroleum Co.'s No. 70 Billings unit, SE SE SE Section 21-23-2w, cellar.

Grant County: Carter Oil Co.'s No. 2 Booher, C W½ SW SW Section 16-25-3w, cellar and pits.

Carter County: Carl Carter's No. 1 Ormes, SW SW SW Section 34-3s-3w, drilling below 175 ft.

East Texas Fields

(Continued from Page 303)

Matthews, 3,621-36 ft., 40 bbl. Roy Sunby's No. 1 Rosh, dry and abandoned at total depth of 3,763 ft.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour gages)

Henderson County

A wildcat, W. R. Manning's No. 1 J. A. Johnson, dry and abandoned at total depth of 3,245 ft.

Titus County

In the Talco field, Adams-Lyle's No. 1 Bank of Mount Pleasant, junked and abandoned at total depth of 4,337 ft.

Leon County

In the Cayuga field, Carter-Gragg Oil Co.'s No. 2 M. K. Carter, 5,218-42 ft., 115,000,000 cu. ft. gas.

NORTH TEXAS COMPLETIONS

Archer County

J. Beren and others' No. 1 J. H. White, 4,358-4,418 ft., 1,200 bbl. British American Oil Production Co.'s No. 1 George Parrish, 4,808-30 ft., 360 bbl., swabbing. Cato Oil Co.'s No. 11 O. T. Anderson, 1,085 ft., dry. Chapman & McFarlin's No. 11 L. F. Wilson C, 4,317-95 ft., 1,100 bbl. Helmerich & Payne's No. 1-A H. Wilmot, 4,357-65 ft., 360 bbl. King Oil Co.'s No. 15 fee, 1,485 ft., dry. Peterson & DeMontel No. 2 J. Schildknecht, 4,272-4,313 ft., 1,050 bbl. Petroleum Production Co.'s No. 4 S. R. White and others, 4,371-4,417 ft., 830 bbl. Rancho Oil Co.'s No. 18 H. O. Prideaux, 652-66 ft., 8 bbl. L. Sikes' No. 2 F. C. Cowden, 4,400-27 ft., 120 bbl.

Clay County

Apache Oil Co.'s No. 2 W. A. Anderson and others, 1,130-41 ft., 10 bbl. E. N. Costley's No. 5 W. J. McInnes A, 1,078-90 ft., 26 bbl. E. N. Costley's No. 6 W. J. McInnes A, 1,170 ft., dry. E. N. Costley and others' No. 5 C. T. Taylor C, 1,080-90 ft., 258 bbl. E. N. Costley and others' No. 7 C. T. Taylor D, 1,072 ft., dry. Prince Brothers' No. 1 I. H. Kempner, 1,354 ft., dry.

Cooke County

Bridwell Oil Co.'s No. 5 J. Flusche B, 1,206-21 ft., 52 bbl. Cox & Hamon's No. 8 K. Neu, abandoned location. T. P. Frost's No. 1 Charles Clerr, 848 ft., dry. Kingery Brothers' No. 7 Alice Johnson, 1,177-97 ft., 250 bbl. Lausen & Dixon's No. 2 C. J. Fette, 1,112-13 ft., 166 bbl. C. E. Marshall and others' No. 1 H. W. Stark, 4,920 ft., dry. Texas Co.'s No. 19 T. Truebenbach, 763-93 ft., 77 bbl.

Jack County

Welch Hill Oil Co.'s No. 1-A George T. Griffith, 320 ft., dry.

Montague County

Benton & Holmes' No. 3 Joe Bowers, abandoned location. Claymount Oil Co.'s No. 2 E. J. Bouldin, 813-22 ft., 25 bbl. Falls Refining Co. and others' No. 15 Crow, 758-85 ft., 10 bbl. Ramsey Petroleum Corp.'s No. 1 J. K. Loring, 6,988 ft., dry.

Wichita County

C. E. Beavers' No. 1 J. J. Perkins, 1,545 ft., dry. C. E. Beavers' No. 2 J. J. Perkins, 1,462-73 ft., 10 bbl. Carey and others' No. 1 Kemp, 804 ft., dry. C. O. Davis' No. 1 Will Burnett, 4,018-4,119 ft., 488 bbl. Deep Oil Development Co.'s No. 1 C. Birk, 1,740 ft., dry. Deep Rock Oil Corp.'s No. 7 E. H. Hamilton, 3,745-75 ft., 320 bbl. Hanlon-Buchanan, Inc.'s No. 12 Fassett & Tuttle E, 4,006-64 ft., 375 bbl. Hanlon-Buchanan, Inc.'s No. 17-A Fassett & Tuttle G, 832 ft., dry. Hubble Production Co.'s No. 5 L. C. Denny, abandoned location. Kadane & Featherston's No. 1 Waggoner Brothers, 3,725-3,865 ft., 25 bbl. Kadane Griffith Oil Co.'s No. 1 N. H. Martin, 3,710-3,867 ft., 400 bbl. Lawsonia, Inc.'s No. 3 W. T. Waggoner AA, 1,618 ft., dry. F. W. Merrick, Inc., and others' No. 2 O. M. Jones, 4,020-98 ft., 720 bbl. Mogren & Anderson's No. 9 C. A. Mertens, 1,697 ft., dry. W. B. Omohundro's No. 8 W. L. Hodges, 3,764-3,835 ft., 640 bbl. W. B. Omohundro's No. 9 W. L. Hodges, 3,781-3,876 ft., 400 bbl. W. B. Omohundro's No. 5 O. M. Jones, 3,950-4,084 ft., 720 bbl. George Proctor and others' No. 53 Ed Foster, 1,518-48 ft., 71 bbl. George Proctor and others' No. 54 Ed Foster, 1,522-49 ft., 242 bbl. Shell Oil Co., Inc.'s No. 7 N. C. Griffin, 3,735-3,809 ft., 578 bbl. Tide Water and others' No. 9 W. P. Ferguson, 3,705-3,821 ft., 1,944 bbl.

Wilbarger County

King Oil Co.'s No. 11 W. T. Waggoner N, 1,403-40 ft., 10 bbl. Phillips Petroleum Co.'s No. 1 Waggoner "G. Pratt," abandoned location. W. T. Waggoner estate's No. 2 fee FF, 3,216-21 ft., 686 bbl.

Young County

T. D. Humphrey's No. 1 S. J. Jeffery A, 4,355 ft., dry. Lupton & McLester's No. 1 T. W. Brazelton, 3,050 ft., dry. Mrs. B. T. Meyer and others' No. 1 E. B. Calvin, 640 ft., dry Sparks and others' No. 8 Roy Laird, 853-75 ft., 55 bbl. Paul B. Worthington's No. 1 Ben Schlegel B, 1,134 ft., dry. H. Zweifel's No. 1 R. L. Martin B, 3,880-4,008 ft., 625 bbl.

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1940 High	1940 Low	Week ended May 11 High	Week ended May 11 Low	Week ended May 11 Close	Stocks	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1939	Com. sh. earn. 1938	Com. sh. earn. 1937	1939 High	1939 Low	1938 High	1938 Low
58½	53	57⅞	54⅝	54⅝	Amerada Corp.	788,675	N.P.	50cQ	4-30-40	$2.00	$2.07	$3.04	74½	50	78	55
27⅛	20½	27⅛	25	26⅜	Atlantic Refining	2,663,999	$25	25cQ	6-15-40	1.00	1.40	3.51	24¾	18⅛	27⅜	17⅜
16⅝	13¾	16	14¾	14¾	Barber Asphalt Co.	390,223	$10	25c	5-21-40	.25	—.85	1.91	21	10¼	23¾	12⅛
13⅜	10¾	11⅜	10⅞	11	Barnsdall Oil Co.	2,250,344	$5	15c	6-8-40	.90	1.26	.85	19½	11⅛	21⅜	10⅛
8⅛	7	7¾	7⅜	7½	Consolidated Oil Corp.	13,751,846	N.P.	20cQ	5-15-40	.80	.55	1.48	9⅞	6½	10⅜	7
25	22⅛	24	22⅝	23	Continental Oil of Delaware	4,682,581	$5	25cQ	3-25-40	1.00	1.10	2.98	31½	19⅞	35¾	21⅛
6⅞	5½	6¼	5½	5½	Houston Oil	1,098,618	$25	....	10-17-30	....	.83	.94	9⅜	4½	9¾	5
14⅜	11⅜	13⅜	13⅛	13⅛	Lion Oil Refining	435,815	N.P.	25cQ	4-20-40	1.00	2.09	2.17	18⅛	10	25⅛	15⅝
17⅜	13¾	17⅜	16⅛	16¾	Mid-Continent Petroleum	1,857,912	$10	40c	6-1-40	.60	.56	2.86	18	11⅛	22⅝	12⅛
11	9½	11	10⅜	10⅞	Mission Corporation	1,379,245	$10	40c	12-15-39	.65	1.04	1.31	14⅞	8⅝	17⅜	10⅝
9¾	7⅝	9¼	8⅛	8⅜	National Supply	1,155,517	$10	....	12-22-37	....	—.79	4.90	15½	5⅝	23	12½
8⅜	6½	8⅜	7⅜	8	Ohio Oil Co.	6,563,377	N.P.	20c	6-15-40	....	.25	1.30	10½	6	14⅞	8⅜
8¼	6⅞	8½	7¾	8¼	Pacific Western Oil	1,000,000	N.P.	40c	12-19-39	.40	1.22	1.39	11⅞	7	15⅞	10¼
8½	6¾	8⅜	8⅜	8⅜	Pan American Pet. Trans.	4,702,945	$5	....	12-31-37	....	.08	1.18	8¾	5	9¼	6¼
41¾	36½	40¼	38⅝	38⅝	Phillips Petroleum	4,449,052	N.P.	50cQ	6-1-40	2.00	2.03	5.42	46½	31¼	44⅝	27¼
22¾	20½	21	20½	20½	Plymouth Oil Co.	1,006,200	$5	35cQ	3-30-40	§1.40	2.59	2.85	24	17⅛	25⅜	15
11½	8⅛	11½	10¼	10⅝	Pure Oil Co.	3,982,031	N.P.	25c	12-20-39	.25	.38	2.15	11⅜	6⅛	13½	8¼
8⅜	6¾	7⅜	7	7	Richfield Oil Corp.	4,010,000	N.P.	50c	12-18-39	.50	.51	.35	10¼	6⅝	9⅞	5
20	17¼	18½	17	17½	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	6-15-40	1.00	1.52	1.97	24⅜	15½	27½	15½
13⅛	10⅜	12⅜	11⅝	12	Shell Union Oil	13,070,625	N.P.	25c	12-20-39	.50	.72	1.44	17¼	9⅞	18⅜	10
23	18½	23¼	21¼	22	Skelly Oil	995,349	$15	25c	1-30-40	.75	2.27	6.07	29½	15½	34⅜	18½
12½	10¾	11	10	10¼	Socony-Vacuum	31,206,071	$15	25cSA	3-15-40	.50	1.29	1.82	15⅛	10¼	16⅜	10⅜
26⅛	22	22⅜	21½	21⅜	Standard Oil of California	13,004,153	N.P.	25cQ	3-15-40	1.10	2.22	3.17	33⅝	24¼	34⅞	25⅛
29	25	28⅛	27	27¼	Standard Oil (Indiana)	15,272,020	$25	25c	6-15-40	1.25	1.82	3.66	30	22¾	35½	24⅝
46½	40	43¼	41⅝	42⅝	Standard Oil of New Jersey	26,618,065	$25	1.00†	6-15-40	‖1.25	2.86	5.64	53½	38	58⅝	39¾
65⅞	56¼	65⅝	64¼	65⅝	Sun Oil	2,316,484	N.P.	25c*	6-15-40	1.00	1.07	3.86	66	45¾	65⅛	45
2½	1⅞	2	1⅞	1⅞	Superior Oil Corp.	1,388,979	$1	10c	12-28-38	....	.24	.32	3⅝	1¾	4¼	1¾
47⅝	42⅜	47¼	45	45¾	Texas Corp.	10,876,882	$25	50cQ	4-1-40	2.00	2.13	5.02	50¾	32½	49⅝	32⅝
4¼	3½	4⅛	3¾	3¾	Texas Gulf Producing Co.	888,146	N.P.	10c	6-15-40	.20	.86	.68	5⅜	3¼	5⅞	2⅝
8⅝	7½	7⅞	7½	7⅜	Texas Pacific Coal & Oil	888,236	$10	10c	6-1-40	.40	1.16	1.11	11⅜	7	12½	7
12	10	12	11½	11⅝	Tide Water Associated	6,375,253	$10	25c	6-1-40	.80	1.28	2.08	14¼	9½	15⅜	10⅛
17½	15	15¼	15	15⅛	Union Oil Co. of California	4,666,270	$25	25c	5-10-40	1.05	1.47	2.58	19⅜	15⅛	22½	17⅛
28⅞	22¾	29⅞	26¼	29⅞	Union Tank Car Co.	1,177,381	N.P.	45c	6-1-40	1.30	1.16	1.70	24¼	20⅛	23⅛	20
3⅝	2¾	2⅞	2¾	2⅞	Wilcox Oil & Gas	487,568	$5	10c	2-15-40	....	.52	.24	4¼	2⅝	3½	1⅝

*Also 5 per cent in stock. †Includes extras. ‡Also 2 per cent in stock. §Also 4 per cent in stock. ‖Also 2½ per cent in stock. ¶Also 1½ per cent in stock. —Deficit.

New York Curb Exchange

1940 High	1940 Low	Week ended May 11 High	Week ended May 11 Low	Week ended May 11 Close	Stocks	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1939	Com. sh. earn. 1938	Com. sh. earn. 1937	1939 High	1939 Low	1938 High	1938 Low
10¾	6⅛	10¾	8⅝	9	American Republics Corp.	1,308,049	$10	10c	7-11-38	....	—$0.22	$0.27	11¾	5½	11¾	5
3¼	1⅞	2½	2⅛	2¼	Bridgeport Machine Co.	270,000	N.P.	$1.25	12-30-37	....	—.14	1.90	7¼	2½	10¼	4⅞
43	28	39¾	39¼	39½	Buckeye Pipe Line Co.	200,000	$50	$1	6-15-40	$2.50	2.36	4.02	34¾	26½	39	22½
117	110	116	116	116	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	3-29-40	6.00	5.32	6.73	130	108⅝	128	97
6¾	4	6⅝	5¾	6	Cities Service (new)	3,704,067	$10	....	6-1-32	....	.23	1.02	9¼	4¼	11	5⅛
2⅛	1⅛	2	2	2	Cosden Petroleum	462,551	$1	....	.....	....	....	.19	2¼	½	2⅝	⅞
24¼	19¾	24⅛	23⅛	23⅝	Creole Petroleum	6,975,383	$5	50cSA†	6-15-40	1.00	1.64	1.61	28	16¾	27½	17½
4⅜	4	..	..	..	Darby Petroleum	351,390	$5	25cSA	1-15-39	.25	....	1.36	7⅛	3⅝	10¼	5½
2	1½	1½	1½	1½	Derby Oil & Refining	263,162	N.P.	....	.....	....	—.91	1.34	2⅝	1½	3½	1½
31	23½	..	..	..	Eureka Pipe Line	50,000	$50	75c	5-1-40	2.00	—.37	—.12	23	15⅛	31	16
39⅞	34	37¾	36⅛	37¼	Gulf Oil Corp.	9,076,202	$25	25cQ	4-1-40	1.00	1.43	3.51	45⅛	29¼	46⅞	33
68	55	60¾	58⅛	59	Humble Oil & Refining	8,987,840	N.P.	62½c	4-1-40	2.00	3.98	5.22	71	52½	72⅝	56
12⅝	8⅝	9⅞	9½	9⅝	Imperial Oil of Canada	26,965,078	N.P.	37½c†	6-1-40	1.00	.96	.98	17	11⅜	19½	14⅛
7¾	5¾	7⅜	7¼	7¼	Indiana Pipe Line	300,000	$10	10c	5-15-40	.50	.47	1.03	7¼	5½	9⅜	6
19¾	14	16⅛	15	15	International Petroleum	14,324,088	N.P.	75c	6-1-40	1.75	1.98	....	27½	17	31¼	21
2¾	2¼	2⅝	2½	2½	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	....	.14	.17	3¾	2⅛	5	2⅛
10¾	9⅝	10¾	10⅜	10⅜	Lone Star Gas	5,553,747	N.P.	20c	4-22-40	.70	.88	1.14	10½	7⅛	10⅜	6⅝
6¼	5	5⅜	5¼	5¼	Louisiana Land & Exp.	2,977,449	$1	10c	3-15-40	.35	.45	.58	7⅝	4	9⅜	6½
17	11½	..	..	..	Margay Oil Corp.	149,943	N.P.	25cQ	4-10-40	1.00	2.28	3.26	17	14½	24	16
8⅜	7¼	8½	8	8¼	Midwest Oil Co.	998,474	$10	45c	6-15-40	.90	.93	1.14	8¾	6⅝	9¾	6⅝
6¼	5¼	6¼	6	6⅛	Mountain Producers	1,593,584	$10	30cSA	6-15-40	.60	.62	.76	6	4⅞	5¾	4½
13⅛	11⅞	12¼	12	12	National Fuel Gas	3,810,183	N.P.	25cQ	4-15-40	1.00	.84	.96	14	11¼	14⅝	11½
12½	8¾	11⅝	11	11	National Transit	509,000	$12.50	50c	12-15-39	.85	.88	1.19	9½	7¼	9¼	6½
1¼	1	1⅛	1⅛	1⅛	New Mexico and Arizona	1,000,000	$1	1c	12-1-37	....	.02	.02	1⅜	1	2⅝	1½
7¾	5¼	7¼	7¼	7¼	New York Transit	100,000	$5	25c	4-15-40	.40	.16	.49	6	4	4½	3½
9⅞	6¾	8¾	8½	8¾	Northern Pipe Line	120,000	$10	40c	6-1-40	.30	.24	.78	7	4½	6	4
5½	4½	5¼	4⅞	4⅞	Pantepec Oil	2,857,000	$1	....	.....	....	....	....	7⅝	4	7¾	3½
3¼	2¼	2⅝	2⅝	2⅝	Root Petroleum Co.	336,045	$1	25c	2-1-37	....	.17	—.17	5	1¼	4½	1⅝
2¼	1⅞	2⅛	2⅛	2⅛	Ryan Consolidated	298,931	N.P.	....	.....	....	.29	.46	3	1⅞	4	2⅛
11¾	4⅞	10½	10½	10½	Southern Pipe Line	100,000	$10	15c	3-1-40	.30	—.27	.85	4⅞	3½	5⅝	3¼
44	37½	39½	38½	38½	South Penn Oil	1,000,000	$25	37½c	3-29-40	3.00	1.44	4.64	40½	26¾	39	28¾
35	22	30	30	30	Southwest Penna. Pipe Lines	35,000	$50	$5	4-1-40	2.00	—.41	.95	23	18	22¾	16½
20⅞	20	20⅜	20½	20½	Standard Oil of Kentucky	2,604,790	$10	25c	3-15-40	1.30	1.45	1.60	20⅛	17¼	18⅝	15
41¾	28¾	41¾	39½	39¾	Standard Oil of Ohio	753,740	$25	25c	6-15-40	1.50	1.81	3.67	32⅝	17	22⅝	16¼
2	1⅜	1⅞	1¾	1¾	Sunray Oil	2,007,076	$1	5c	5-1-40	.10	.23	.42	2⅜	1⅜	3¼	2
2⅜	1½	2⅜	2½	2½	Texon Oil & Land	936,024	$2	10c	3-29-40	.10	.56	.51	4	2⅝	5¼	3½
3⅜	2¼	2½	2½	2½	Transwestern Oil Co.	750,000	$10	....	.....	....	—.12	.48	6	2½	7⅝	4¼
2⅛	1¼	1⅞	1⅝	1½	United Gas Corp.	7,818,959	$1	....	.....	....	—.51	.25	3⅜	1½	5¼	2⅝

†Includes extras. —Deficit.

Personal Paragraphs

WILLIAM THORMBURY recently arrived in Santa Elena, Province of Guayas, Ecuador, to resume his duties as assistant field manager for Ecuador Oilfields, Ltd., following a vacation in California. A controlling interest in this company is held by British Controlled Oilfields, Ltd.

GORDON GRAY, scout for Humble Oil & Refining Co. in the Laredo district, Southwest Texas, has been promoted to chief scout of the Corpus Christi division. Mr. Gray succeeds JOE ADAMS, who was recently transferred to coastal Louisiana.

B. I. GRAVES, vice president, Tide Water Associated Oil Co., has been elected a director of Mission Corp.

R. N. MYERS, drilling superintendent for Shell Oil Co., Inc., at Gibson, La., has been transferred to the company's offices at Houston, Tex.

J. L. HANNA, of Standard Oil Co. of California, has been elected a member of the board of directors, succeeding R. W. HANNA.

DR. ROY R. MORSE, in charge of the exploitation department for Shell Oil Co., Inc., Houston, Tex., was elected honorary member of the University of Houston Society of Engineers.

W. J. BYRNE, chairman of the board of Commonwealth Oil Refineries, Ltd., Australian operating subsidiary of Anglo-Iranian Oil Co., Ltd., has been reelected Grand Master of the Grand Lodge of Freemasons of Victoria.

FRED VAN BILDERBEEK, of the Shell Oil Co., Inc., has been in California for the past several months. He is scheduled to leave May 31 on a return trip to The Hague, Holland, providing transportation can be arranged into this present zone of war.

H. G. PEGUES, of United Gas Pipe Line Co., has been promoted from chief dispatcher at Jackson, Miss., to district field and section foreman at the company's home office in Shreveport, La. J. L. JONES, of the Shreveport area, has been advanced from assistant to district pipe-line superintendent.

FRANK BUTTRAM, president, Independent Petroleum Association of America, has added JAMES H. LEWIS, president, Sunset Oil Co., Los Angeles, and T. O. GRISELL, vice president, Kendall Refining Co., Bradford, Pa., to the association's committee on refining and marketing practices.

W. R. DAVIS, of New York; ARTHUR L. HOBSON, JR., attorney for Mr. Davis, and RICHARD BENNETT, Boston banker, were elected directors of the Panhandle Producing & Refining Co. May 7 at the annual meeting in Wilmington, Del. They succeeded MELVIN A. CHAMBERS, RAYMOND C. STANFORD, and SCOTT McLANAHAN, nominees of the management.

SAM J. BRILL, Kendall Refining Co., Bradford, Pa., has been appointed a member of the tax-policy advisory committee of the Independent Petroleum Association of America.

R. H. DONALDSON, formerly in charge of the Shreveport plant of Texas Co.'s refining department, has been placed in charge of the new blending plant and loading terminal being constructed at Mount Vernon, Ind., on the Ohio River.

"DICK" HENRY, chief engineer for the refining division of Cities Service Oil Co. in Tulsa, has joined the engineering staff of the M. W. Kellogg Co. in the latter's Houston, Tex., offices. Mr. Henry left Tulsa to assume his new duties on Wednesday of this week.

DR. FOLKERT BRONS, Groningen, Netherlands, an official of Bataafsche Petroleum Maatschappij, production subsidiary of Royal Dutch-Shell, has been visiting in the Mid-Continent. He has been in Rumania and will spend a year in the United States.

L. C. STEVENS, petroleum engineer with the Caribbean Petroleum Co., who has been in California for the past 2 months, is driving from Los Angeles to attend the International Petroleum Exposition in Tulsa. Following the oil show he will join his family in New York and sail for his headquarters in Maracaibo, Venezuela.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

W. K. Holmes succeeds Tim Mullen as superintendent of the Texas Co.'s refinery in Tulsa. Mr. Mullen is moved upward to the Texas Co.'s Lockport, Ill., plant, succeeding F. P. Dodge, who was made assistant superintendent of the company's big Port Arthur, Tex., refinery.

Roxana Petroleum Co. (Royal Dutch-Shell) pays $1,955,000 for the Devonian Oil Co.'s Maley and Linda Yarhola leases in the Cushing field in Oklahoma. The leases comprise 320 acres in Sections 8 and 9-17-7, with 28 Bartlesville sand and 8 Layton sand wells, producing 8,500 bbl. per day at this time. The deal also includes ten 55,000-bbl. tanks containing 400,000 bbl. of crude oil.

20 YEARS AGO

C. L. McCune was forced by other bidders to pay $316,000 for a quarter section of undrilled land in Section 6-21-12, Osage County, at an Osage lease sale at Pawhuska, Okla. The lease is ½ mile from a new 700-bbl. well.

Five former Mid-Continent oil workers were killed by an explosion at a drilling well in Algiers, North Africa, being drilled by S. Pearson & Son, of London, England.

R. J. Hoffman, former owner of the Kendall Refining Co., and head of the committee that promoted the deep well in the Bradford field, dies in Bradford. He was a successful producer, refiner, and casinghead-gasoline manufacturer.

10 YEARS AGO

Overproduction in the old Pennsylvania Grade fields and in Santa Fe Springs, California, causes a 25-cent cut in the former, and from 75 to 90 cents per barrel reduction in the latter field.

Standard Oil Co. (New Jersey) adds E. M. Clark, C. G. Black, and E. J. Sadler to its directorate.

R. M. HARRIS, geologist, and B. G. WEEKS, land man, have been transferred to the new Jackson, Miss., office of the Union Sulphur Co.

J. ROBEY PENN, president of the Texas Pacific Coal & Oil Co., Fort Worth, Tex., was a business visitor in New York last week.

KARL B. JAUMAN, formerly with the Attock Oil Co. in India, is now in Los Angeles on vacation, contemplating an early return to foreign service.

E. T. HECK, of the West Virginia Geological and Economic Survey, has been appointed a member of the Pennsylvania Grade Crude Oil Association production advisory committee.

KENDALL E. BORN, of the Tennessee Division of Geology, addressed members of the Shreveport Geological Society last week on the subject, "Structural Studies in Central Tennessee."

M. O. ATTEBERY, formerly scout for Lone Star Gasoline Co. at Duncan, Okla., has been transferred to the company's office in the Cayuga field of eastern Texas as scout for that district. He succeeds DAN P. LONG, who recently resigned.

A. L. HENDERSON, West Texas district superintendent for Ohio Oil Co., stationed at Iraan, has taken over the new duties of superintendent in the Southeast New Mexico area. He will cover both districts. GLENN BISH, formerly superintendent of that district, was recently transferred to Houston, Tex., and promoted to division superintendent.

LLOYD MOORE, of General Petroleum Corp.'s marine department, has been elected president of the Bilge Club, succeeding DAN DOBLER, of Texas Co.

A. W. McPHERSON, of the California Arabian Standard Oil Co., now spending his vacation in California, is planning to return to Arabia in the near future.

ROY F. BENY, JR., exploitation engineer for Shell Oil Co., Inc., at White Castle, La., has been transferred to Houston, Tex., as assistant field engineer.

WALTER LAUNEY, scout for Humble Oil & Refining Co., at Houston, Tex., has been transferred to the Corpus Christi division, and will scout the Laredo territory.

WATSON H. MONROE, of the U. S. Geological Survey, presented a paper on the "Upper Cretaceous Formation" at last week's meeting of the Mississippi Geological Society in Jackson.

J. A. BONHAM has been appointed manager of the operations of the Union Sulphur Co., of Sulphur, La. Formerly in the land department of the Magnolia Petroleum Co., he became associated with Union Sulphur April 1, 1937, as manager of its land department.

A. B. VAN TINE, graduate from the Colorado School of Mines, has joined Gulf Oil Corp.'s geological staff in its district office at Amarillo, Tex. He succeeds NICK CARTER, who was recently transferred to the company's Midland, Tex., office. JACK SIGMAN, formerly with a Gulf Oil Corp. field surveying crew, has been added to the land department of the company's Amarillo office.

He Brushed Them Right

Chester L. May, Dallas, Tex., recently elected president of the Community Natural Gas Co. and Texas Cities Gas Co., began his career in the industry cleaning gas meters with a wire brush back in 1910 in the Ohio fields. He cleaned them right and soon he was handling bigger jobs. By 1915 he had become chief inspector for the Arkansas Natural Gas Co. In 1916 he was sent to Texas to survey Lone Star Gas Co. properties and recommend necessary changes. The next year he was made chief inspector for Lone Star. In 1921 he was chosen general superintendent of the Farmers Gas Co., organized to serve small towns along the Lone Star pipe line.

CHESTER L. MAY

When Community Natural was organized in 1925, absorbing the Farmers, Mr. May was appointed general superintendent, and he supervised a huge expansion program. In 1929 he was advanced to vice president and general manager. Four years later the operations of Texas Cities also were placed under Mr. May's management. In 1936 he was made executive vice president and general manager of the two companies, holding these posts till his election to the presidency of the largest natural-gas retailing system between Mississippi and California. Mr. May married Miss Violet Griffin, of Dallas, and they have three children. He is a Shriner and a member of the Dallas Country Club, Dallas Athletic Club, and Dallas Round Table. He is a past president of the Southern Gas Association.

GEORGE BUCHANAN, of Buchanan & Harrison, consulting geologists of Houston, Tex., is in eastern Wyoming supervising seismic work to be undertaken in that area.

FREDERICK G. CLAPP, New York geologist, has returned to the East after spending several months in the Mid-Continent and Texas fields, where he accumulated several oil properties.

HAROLD C. BISHOP, independent operator of New York, was visiting in the Gulf Coast district last week. Mr. Bishop recently returned from Cuba, where he has been engaged in geophysical work.

BEN DANSBY, JR., independent operator formerly of Midland, Tex., has moved his offices from Des Moines, Iowa, back to the former city and has resumed operations in West Texas.

J. C. GRIERSON has been appointed cashier of Union Oil Co., succeeding W. H. CHANDLER, who recently resigned, and FRANCIS J. MALONEY, former senior clerk, has been appointed assistant cashier.

DR. RICHARD R. PRIDDY has resigned as geologist with the Kingwood Oil Co. to accept appointment as assistant geologist for the Mississippi State Geological Survey, succeeding FREDERIC MELLEN, who has entered consulting work in the state.

JOHN W. KING, of Fort Worth, Tex., and in the geological department of Phillips Petroleum Co.'s Bartlesville, Okla., office, and MISS MARY ERWIN, formerly with the geological department of Phillips' district office in Amarillo, Tex., will be married June 1 at St. John's Catholic Church in Shreveport, La.

HENRY LINAM, president, and F. W. FLOYD, manager of the Standard Oil Co. of Venezuela, arrived in New York May 9 to attend the annual meeting of the executive staff of Standard Oil Co. of New Jersey and its subsidiaries in Seaview, N. J., during the week starting May 12.

P. S. MAGRUDER, president of California Natural Gasoline Association, and W. W. ROBINSON, Texas Co., chairman of the association's technical committee, will head a contingent of Californians who will make the trip to attend the Natural Gasoline Association of America meeting, which will be held in conjunction with the Tulsa exposition.

CLEVELAND GHIO, drilling superintendent in eastern Venezuela for Mene Grande Oil Co., is seriously ill in the company hospital at Carapito and physicians had virtually given up hope for his life at the end of last week. Mr. Ghio has been with Gulf companies since 1912 serving in Texas, Mexico, Ecuador, Panama, Venezuela, and other foreign countries. He is director of practically all Gulf wildcat drilling operations where it is necessary to move equipment and transport supplies into virgin territory.

JENNINGS B. PATTON, formerly chief engineer for Sinclair Prairie Pipe Line Co. at Mexia, Tex., has been promoted to assistant division superintendent for the same company in the same area. His service record with his company began in 1912.

H. WILLIAM CLUTE, for the past 12 years in the gasoline department of Sinclair Prairie Oil Co., announces formation of the Clute Petroleum Co., offering a specialized marketing service for natural gasoline, butane, and all petroleum products.

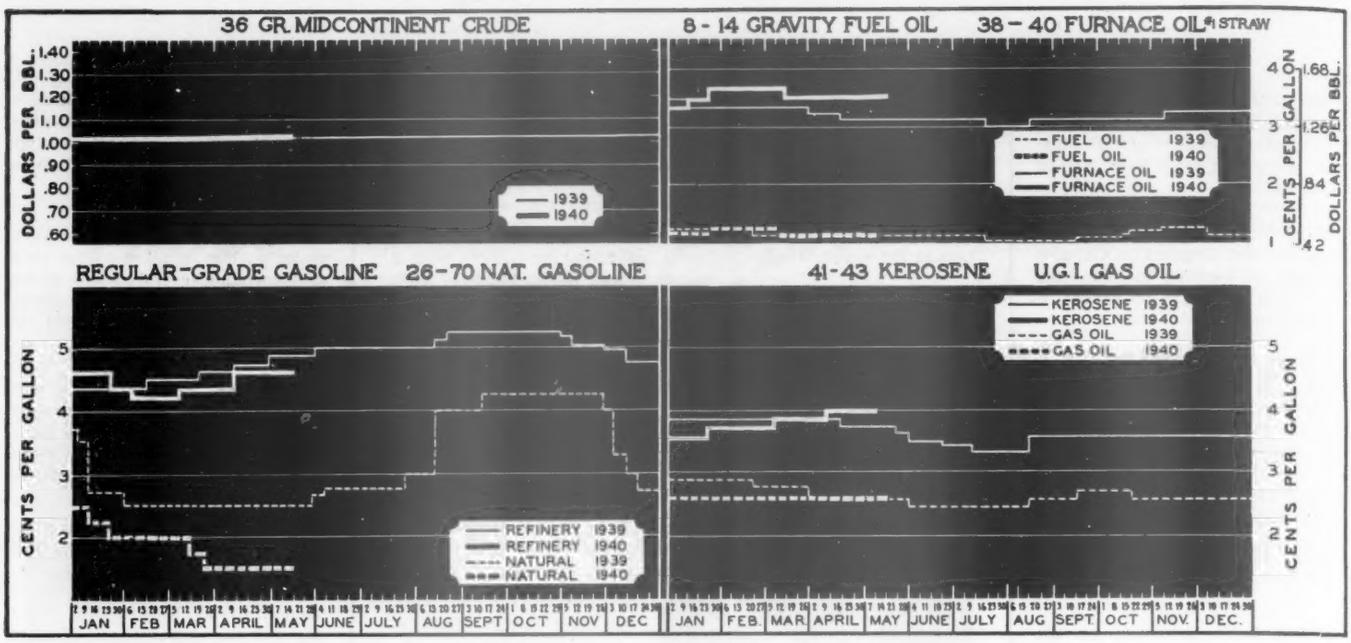
F. W. MUELLER, geologist for Skelly Oil Co., Houston, Tex., and EUGENE EARL of Fohs Oil Co., Houston, discussed the geology of the Samfordyce field, Starr and Hidalgo counties, at the weekly meeting of the Houston Geological Society last week.

D. S. PATTON, formerly engineer at the Texas Co.'s Williams pipe-line station near Salem, Ill., has been transferred to the Laurence Pipe Line Co., where he is chief inspector. In December Mr. Patton returned from South America, where he was inspector on the South American Gulf line.

W. R. REITZ, of Oil City, Pa., was named a director of the Devonian Oil Co. to fill the vacancy occasioned by the death recently of J. P. Flynn, of Sistersville, W. Va.

PAUL (SHORTY) HUGHES, employed in the drilling department of the New Zealand Petroleum Co., sailed recently from Los Angeles Harbor on the Matson liner "Monterey" bound for Honolulu, en route to his post in New Zealand.

Shifts: A. L. HICKERSON, engineer, Phillips Petroleum Co., from Borger, Tex., to Phillips, Tex.; HERMAN A. JANZEN, engineer, Phillips Petroleum Co., from Phillips, Tex., to U. S. engineer, Florissant, Mo.; A. G. EBERTS, engineer, Texas Co., from Monroe, La., to Greenwood, Miss.; HENRY CARTER REA, geologist, Seaboard Oil Co., from Jasper, Ala., to Columbus, Miss.; W. R. CURRY, president, Curry Petroleum Co., from Salem, Ill., to Oklahoma City, Okla.; C. L. WHITEMAN, engineer, Indian Refining Co., from Greenwood, Miss., to Tallulah, La.; HAROLD L. COPELAND, geologist, Carter Oil Co., from Meridian, Miss., to Texarkana, Ark.; COLIN REITH, engineer, Bahrein Petroleum Co., Ltd., from Bahrein Island, Persian Gulf, to Kingwood, W. Va.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Group 3 Gasoline Market Still Cloudy But Sentiment Mildly Improved

By T. F. SMILEY

THERE was less gloom in the Group 3 gasoline market this week. Refiners, who for months had been making unneeded motor fuel for no apparent reason other than that they had equipment for making it, cautiously admitted that the outlook was not quite so dark as it had been.

Buyers who had been getting concessions with regularity from certain suppliers said they found the bargain prices withdrawn this week. Jobber purchasing was gaining momentum. Cold and rain, which had discouraged motoring in various areas, were giving way to pleasant weather. A feeling that prices might go to higher levels was a stimulant to laying in larger stocks, and there were predictions that the widening of mechanized warfare in Europe would increase export business. The third-grade market was steadier.

Mid-Continent Stocks Down

Mid-Continent refiners got a little satisfaction out of the statistics for the week ended May 4, which showed their gasoline stocks had subsided 129,000 bbl., in contrast with a rise of 198,000 bbl. on the East Coast. With the annual vacation season close at hand and consumption already running at a new high rate for this time of the year, heavy inroads on the huge accumulation of gasoline are expected. Nobody, however, is venturing a forecast that the nation's stocks will be brought to an economic level during the coming summer.

Natural-gasoline manufacturers seemed to be feeling a bit more cheerful, though they conceded there was little basis for lighter spirits. Contributing to their brightened mood was appearance of some coastwise business, the first in months. There was a pretty general feeling too that June would witness a modest revival of export business. The recent developments in Europe's war, manufacturers said, were likely to bring buyers of gasoline and other oil products to this country. One of the strange things in connection with the weakness of the natural-gasoline market, which began last December, is the fact that throughout it all the demand in Oklahoma has been excellent. It was declared that not a gallon of distress gasoline could be found in the state this week. The demoralization that has carried prices down to their present profitless level prevails in Texas, and if Oklahoma manufacturers quote prices more than a quarter cent higher than those of their southern neighbors, the freight differential would be wiped out and Texas material would overflow into Oklahoma's markets.

Lubricating oils were holding, and there was a disposition to see signs of a better outlook for the eastern market, which has displayed extreme weakness in recent months and made it impossible for Mid-Continent refiners to reap the full benefits of sturdy demand.

The Conewango Refining Co., Warren, Pa., has closed its plant, with an announcement that it will remain down until overheavy stocks have been worked off. Other companies were understood to be contemplating similar action. Group 3 refiners said that if excessive stocks of lubricating oil at eastern refineries were disposed of a strong market would develop promptly in all areas.

Furnace Oils Steady

Furnace oils retained the steady tone that has characterized them this spring in spite of the seasonal drop in consumption. Feeling persisted in the trade that this division of the market would experience no real slack period. There was no noticeable activity in any of the grades with the exception of water-white distillate. The fact that this material finds use as a tractor fuel probably accounts for its favored position. Kerosene had lost none of its strength. As a matter of fact, kerosene and the tractor fuels seemed to have acquired an even stronger tone than they displayed last week. Spring plowing operations have been delayed in agricultural districts by rains, and farmers now are endeavoring to make up for lost time. Wax was slightly firmer at unchanged quotations.

Refined Oil Market Barometer

Although gasoline consumption rose substantially in the past week, the market was weak, especially on the Gulf and East coasts. Faintly better feeling was evidenced in the Mid-Continent. Kerosene was slightly easier in most areas. Light fuels were offered more freely, but quotations were fairly firm. Little change was reported in natural gasoline, though sentiment was a little more cheerful. Lubricating oils easy.

MID-CONTINENT. Gasoline slightly steadier. Light fuels holding. Wax firmer.

EAST COAST. Gasoline soft. Kerosene and light distillates showing weak spots.

GULF COAST. Kerosene and fuel oils decline. Gasoline in serious need of relief.

PENNSYLVANIA. Kerosene stronger. Gasoline dull. Position of wax improved.

CALIFORNIA. Gasoline soft. Fuel oil and diesel easy. Natural gasoline weak.

CHICAGO. Kerosene and tractor fuels steady. Gasoline quiet. Heavy fuels firmer.

Eastern Gasoline Consumption Rises but Price Unchanged

By H. STANLEY NORMAN

NEW YORK, May 14.—More favorable weather conditions brought an increase in motoring in the northeastern section of the country last week, which, along with the opening of the New York World's Fair, 1940, elevated gasoline consumption to the highest point reached so far this year. Motor-fuel prices in general were unchanged although numerous reports circulated that sales are being made at practically all the eastern seaboard terminals at figures below those quoted. The price shading is particularly prevalent among the barge-dock operators at Philadelphia, Boston, and New York.

The motor-fuel tank-car market appears to be on slightly firmer ground than that for barge deliveries. Resumption of traffic through the New York Ship Canal has stimulated deliveries to points served by that inland water route.

Within 2 weeks the higher level of consumption in this densely populated section is expected to show real inroads into the country's motor-fuel stocks.

Refiners were at a complete loss at the end of last week in efforts to appraise effect of the latest movement in the European conflict. Officials of the Netherland Government in this country have urged ship-line operators to maintain normal movement, if possible, but there is doubt among the tanker brokers that boats will be risked on voyages to ports in the Netherlands, Belgium and northern France until more is known of the situation prevailing in western Europe. Early reports from Germany's western drive indicated that bombs had been dropped on the French ports of Dunkerque and Calais, the former being one of the nerve centers to France's petroleum-refining industry. It was too early to determine whether the Allies will call for prompt delivery of a greater volume of petroleum supplies with which to carry on operations in Belgium and other parts of western Europe. At best, there was no immediate change in the export situation which has been at an exceptionally low point throughout 1940, up to the present time.

There was another decline of 1 to 2 cents per gallon on Pennsylvania lubricating oils, including neutral, bright and dark cylinder stocks. The domestic demand for lubricants is reported "fair," but exports have continued to fall behind the pace of late last year and burdensome stocks at a few points have depressed the market, mostly on the high side.

Kerosene and light fuel oils are offered a little more freely in the New York market, but are generally holding their price positions. One or two weak spots in the light fuel-oil market are beginning to show up at Boston and Philadelphia, where independent barge terminal operators are making price concessions. Movement of the light burning oils, however, has tapered off to a trickle from the Gulf Coast and most of the refiners are clinging to their previous intention of building stocks to whatever extent is necessary in balanced operations. The tank-car price of No. 2 fuel oil in the New York market remained at 5.4 cents per gallon. However, in Boston some material was offered at 5 cents and it was rumored that comparable figures could be obtained at other ports by a canvass of the market.

Motor fuel of 70-octane specification was offered at 6 cents per gallon in barges in New York, while tank-car suppliers generally reported a range of 6¼ to 7 cents per gallon for the same material. A price range of 6¼ to 7 cents per gallon also prevailed for 72-74 octane. Barge dealers were in position to purchase 72-74-octane motor fuel for 6 cents at both New York and Philadelphia, according to reports.

Kerosene prices were mostly unchanged, with New York suppliers quoting 5.9 to 6 cents per gallon in the tank-car market. There has been a slight softening on kerosene in the Gulf market, where most refiners are now willing to ship on bids of 4½ cents for 41-43 water-white material. Previously a few refiners had held their kerosene quotation to the cargo trade up to 4⅝ cents. The high side of the marine-diesel market in the New York district has dropped back to $2.20, which is now a rather uniform figure for this product.

Domestic wax prices are unchanged from the preceding week and export quotations were on stable ground up until the close of last week, but beyond that, dealers were unprepared to make a forecast of market trends. Invasion of Norway, Denmark, Belgium, Holland and the practical isolation of Sweden has been an important factor in gradually narrowing the export market, not only for wax but for all other petroleum products.

The coastwise tanker rates reported last week were strictly nominal, but in general the owners asked from 55 to 70 cents per barrel with the higher prices still applying to dirty boats.

Gulf Coast Markets

HOUSTON, Tex., May 14.—With fuel and burning oils continuing to sag and kerosenes easing up sharply, there was little optimism left in Gulf Coast refinery markets this week. There still was no indication of relief to refiners from the pressure of overflowing gasoline storage or hope of easing up in the tight tanker situation. Only lubricating stocks and diesel-index oils maintained a semblance of stability.

Rumors still are heard that buyers of gasoline are about ready to enter the market, but they make little impression for Gulf Coast sellers have been hearing such reports frequently. Refiners realize too that unless the buyers have tankers it would not do them or the refiners much good to make the purchases.

Suppliers are finding it useless to make further offers of price concession to get business, and so far as the quoted prices are concerned there was little change in the gasoline market the past week. For the most part, refiners sit with long faces awaiting eventualities. Most quotations are nominal and are extremely flexible and buyers able to move material would have no difficulty in doing business on their own terms.

The situation is resulting in narrowing of quotation differentials for the various octane grades. High-octane gasoline now is quoted by some suppliers at prices about as low as those quoted on lower-octane material by other suppliers. The situation seems to be developing into a problem of moving gasoline, regardless of the grade.

No. 2 fuel eased off another eighth cent during the week with the general market now quoted at 3½ to 3⅝ cents and some sellers asking 3¾ cents. Bunker C fuel in cargoes, however, held at a low of 72 cents, although it was evident that demand was slacker and that supplies were mounting.

The coastal lubricating-oil market is beginning to feel the effect of the lower prices quoted for Mid-Continent stocks, although some suppliers say they are sold up and facing a shortage of material to meet the demand. Buyers reported being able to obtain material at slight concessions from the prevailing quoted market.

Kerosenes definitely were easier and sellers were open to offers.

A. P. I. Weekly Refinery Statistics

Week Ended May 11, 1940

	Capacity reporting (per cent)	Total gasoline stocks (bbl.)	Residual fuel-oil stocks (bbl.)	Gas oil and distillate stocks (bbl.)	Daily crude runs (bbl.)
East Coast	100.0	23,429,000	8,771,000	6,351,000	576,000
Appalachian	91.0	4,084,000	643,000	384,000	121,000
Ind., Ill., and Ky.	89.0	18,152,000	3,141,000	2,630,000	566,000
Okla., Kans., and Mo.	76.9	8,126,000	1,899,000	1,023,000	287,000
Inland Texas	59.6	1,936,000	1,445,000	278,000	126,000
Texas Gulf	85.3	15,051,000	5,178,000	3,642,000	857,000
Louisiana Gulf	97.6	3,086,000	935,000	762,000	116,000
N. Louisiana and Ark.	51.5	552,000	438,000	214,000	47,000
Rocky Mountains	55.5	1,661,000	605,000	147,000	43,000
California	87.3	18,175,000	78,750,000	9,866,000	513,000
Total reported	85.1	94,252,000	101,805,000	25,297,000	3,252,000
Est. unreported	.....	7,065,000	2,180,000	1,255,000	368,000
*Est. total	.....	101,317,000	103,985,000	26,552,000	3,620,000
*Est. total previous wk.	.....	102,063,000	103,043,000	25,658,000	3,505,000
*May 12, 1939	.....	86,457,000	109,904,000	26,904,000	3,400,000

*Bureau of Mines.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended May 4, 1940	258,210,000 barrels
Week ended April 27, 1940	256,670,000 barrels
Week ended May 6, 1939	278,607,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of May 14, 1940

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Chicago, Ill.	15.1	13.1	4.0	10.0
Decatur	15.1	12.1	4.0	9.5
Joliet	15.1	13.6	4.0	10.0
Peoria	15.1	12.7	4.0	10.0
Quincy	14.9	13.4	4.0	9.8
Davenport, Ia.	15.1	13.6	4.0	‡10.0
Des Moines	14.9	12.4	4.0	‡9.8
Mason City	15.3	13.8	4.0	‡10.2
Duluth, Minn.	16.9	15.4	5.0	10.8
Mankato	16.5	15.0	5.0	10.4
Minneapolis	16.5	14.5	5.0	10.4
LaCrosse, Wis.	16.5	15.0	5.0	10.4
Green Bay	16.9	15.4	5.0	10.3
Milwaukee	16.3	14.8	5.0	10.2
Detroit, Mich	13.6	12.1	4.0	7.6
Grand Rapids	13.2	11.7	4.0	9.0
Saginaw	14.2	12.7	4.0	9.3
Evansville, Ind.	16.6	15.1	5.0	†10.5
Indianapolis	16.8	14.3	5.0	†10.2
South Bend	16.8	15.3	5.0	†10.2
Fargo, N. D.	16.2	16.2	5.0	11.6
Huron, S. D.	17.0	15.5	5.0	10.9
Kans. City, Mo.*	14.4	12.9	4.0	8.0
St. Louis*	14.7	12.7	4.0	8.0
St. Joseph	14.4	12.0	4.0	7.9
Wichita, Kans.	13.3	11.6	4.0	7.5

*State tax 2 cents, 1-cent city tax, and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off; minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective April 18, 1940, f.o.b. Chicago, tank-wagon prices: Standard heater oil, 1-99 gal., 8.75 cents; 100-149 gal., 7.75 cents; 150 gal. and over, 7.25 cents. Stanolex fuel oil No. 1, 1-99 gal., 8.5 cents; 100-149 gal., 7.5 cents; 150-399 gal., 7 cents; 400 gal. and over, 6.5 cents. Stanolex furnace oil, 1-99 gal., 8.5 cents; 100-149 gal., 7.5 cents; 150-399 gal., 7 cents; 400 gal. and over, 6.5 cents. Stanolex fuel oil A, 1-399 gal., 5.5 cents; 400-799 gal., 4.5 cents; 800 gal. and over, 4.25 cents, Stanolex fuel oil B, 1-399 gal., 5.5 cents; 400-799 gal., 4.5 cents; 800 gal. and over, 4.25 cents. Stanolex bunker C fuel oil, 1-999 gal., 4.25 cents; 1,000 gal. and over, 3.25 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline Cons'r tank wag.	Di-vided dlr.	Incl. tax	Kero. tank wag.
Ohio points	15.5	14.5	5.0	*12.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Atl'tic City, N. J.	11.6	12.7	4.0	8.4
Newark	11.6	12.7	4.0	8.4
Annapolis, Md.	13.35	14.35	5.0	9.5
Baltimore	12.75	13.75	5.0	9.0
Cumberland	14.15	16.15	5.0	10.0
Wash'gton, D. C.	11.00	12.00	3.0	9.5
Danville, Va.	14.95	17.45	6.0	11.5
Norfolk	13.75	16.25	6.0	11.0
Petersburg	14.05	16.55	6.0	11.7
Richmond	14.05	16.55	6.0	11.0
Roanoke	15.25	17.75	6.0	11.5
Charles'n, W. V.	14.55	17.05	6.0	12.6
Parkersburg	13.85	15.35	6.0	11.2
Wheeling	14.85	16.75	6.0	11.8
Charlotte, N. C.	16.90	16.50	7.0	11.8
Hickory	17.45	18.95	7.0	12.3
Mt. Airy	17.30	18.80	7.0	12.2
Raleigh	16.65	16.50	7.0	11.5
Salisbury	16.95	16.00	7.0	11.9
Charleston, S. C.	14.75	17.25	7.0	9.25
Columbia	15.60	18.10	7.0	11.5
Spartanburg	16.30	18.80	7.0	12.2

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery; 100,000 gal. per year, consumer tank-car price plus 0.5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less 0.5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less 0.5 cent per gallon. The above policy also applies in South Carolina, effective January 23, 1939.

Discounts for kerosene, 1 cent off tank-wagon price for 25 gal. or more under contract (contract not necessary in Baltimore), except no discount in New Jersey.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline Cons'r tank wag.	Net dlr.	Incl. tax	Kero. tank wag.
Atlanta, Ga.	17.5	17.5	7.0	11.0
Augusta	17.0	17.0	7.0	10.0
Macon	16.5	16.5	7.0	10.0
Savannah	16.5	16.5	7.0	9.0
Birmingham, Ala.	17.5	17.5	8.0	9.0
Mobile	18.0	18.0	9.0	8.0
Montgomery	19.0	19.0	9.0	9.0
Jackson, Miss.	16.0	16.0	7.0	10.0
Vicksburg	16.0	16.0	7.0	9.5
Jacksonville, Fla.	17.0	17.0	8.0	8.0
Miami	17.0	17.0	8.0	8.0
Pensacola	18.0	18.0	9.0	8.5
*Tampa	17.0	20.0	8.0	8.0
Lexington, Ky.	15.5	15.5	6.0	10.0
Covington	14.5	14.5	6.0	9.5
Louisville	14.5	14.5	6.0	9.0
Paducah	15.5	15.5	6.0	9.0

Price basis to tank-wagon consumers, effective January 4, 1937, 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

*Temporary discounts to tank-wagon consumers in Tampa 3 cents per gallon below consumer tank-wagon price on Crown gasoline.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Albany	11.6	13.6	5.0	8.3
*Met. N. Y.: Manhat., Bronx, Queens, Brklyn., Staten Island	11.7	12.8	5.0	8.5
Buffalo	12.6	14.5	5.0	7.9
Rochester	12.8	14.8	5.0	8.5
Syracuse	12.2	14.0	5.0	8.8
Portland, Me.	11.6	13.5	5.0	8.5
Manchester, N.H.	12.3	14.5	5.0	8.9
Burlington, Vt.	12.1	14.4	5.0	8.7
Boston, Mass.	10.5	11.5	4.0	8.5
Worcester	11.1	12.1	4.0	8.0
Hartford, Conn.	10.9	12.8	4.0	8.4
New Haven	10.8	11.8	4.0	7.5
Providence, R. I.	10.5	12.5	4.0	8.5

*Does not include 2 per cent city sales tax, which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Effective February 15, 1939, the company changed its commercial consumer policy in New York and in New England points for tank-wagon delivery to the following: Annual purchases 10,000 gal. and under, tank-car price plus 2 cents per gallon; annual purchases 10,000 gal. up to 50,000 gal., tank-car price plus 1.5 cents per gallon; annual purchases 50,000 to 200,000 gal., tank-car price plus 1 cent per gallon; annual purchases 200,000 gal. and over, tank-car price plus ½ cent per gallon. Private consumers pay undivided dealer price, plus 2 cents per gallon. Private consumers receiving full compartment deliveries of at least 200 gal. receive a discount of ½ cent per gallon.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Philadelphia, Pa.	12.0	13.5	5.0	10.5
Pittsburgh	13.0	14.5	5.0	10.5
Allentown	13.0	14.5	5.0	10.5
Erie	13.0	14.5	5.0	10.0
Scranton*	12.5	14.0	5.0	10.5
Altoona	13.0	15.0	5.0	10.5
Dover, Del.	...	14.0	5.0	10.5
Wilmington	...	13.5	5.0	10.0

Price basis to undivided dealers, dealer tank-wagon price less 0.5 cent per gallon.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

*Voluntary discount of 1 cent allowed to dealers only.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline Tank truck	Serv. sta.	Incl. tax	Kero. tank wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	20.0	21.0	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.50
Spokane	21.5	22.5	6.0	16.50
Tacoma	20.0	21.0	6.0	13.50

*Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck, and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Denver, Colo.	13.0	...	5.0	10.5
Grand Junction	17.5	...	5.0	12.5
Pueblo	13.0	...	5.0	9.0
Casper, Wyo.	16.5	...	5.0	11.5
Cheyenne	14.0	...	5.0	11.0
Billings, Mont.	18.0	...	6.0	12.0
Butte	16.0	...	6.0	13.0
Great Falls	18.0	...	6.0	12.0
Helena	16.0	...	6.0	12.5
Salt Lake, Utah	15.5	15.5	5.0	14.0
Boise, Idaho	21.1	21.1	6.0	16.0
Twin Falls	21.1	21.1	6.0	16.5
Albu'que, N. M.	13.5	...	6.5	10.0
Roswell	16.0	16.0	6.5	8.0
Santa Fe	17.5	17.5	6.5	10.0

*Includes city tax of 0.5 cent. †Includes state tax of 1 mill.

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
New Orleans, La.	13.75	16.25	8.0	†12.0
Baton Rouge	14.75	17.25	8.0	‡10.5
Alexandria	14.75	17.25	8.0	‡10.5
Lafayette	15.00	17.50	8.0	‡10.0
Lake Charles	14.75	17.25	8.0	‡10.0
Shreveport	13.50	16.00	8.0	‡9.0
Knoxville, Tenn.	18.00	19.50	8.0	12.5
Memphis	16.00	17.50	8.0	11.0
Chattanooga	17.50	19.00	8.0	12.0
Nashville	17.00	18.50	8.0	11.5
Bristol	18.25	17.75	8.0	12.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

†Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline Tank wag.	Incl. tax	Kero. tank wag.
Texarkana, Ark	13.0	5.0	7.0
Fort Smith	14.5	5.0	7.5
Little Rock	16.75	7.5	8.0
Muskogee, Okla.	12.0	5.0	7.0
Oklahoma City	10.0	5.0	6.5
Tulsa	11.0	5.0	6.0

Tank wagon represents price to consumers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Omaha	16.5	12.5	6.0	9.0
McCook	16.5	13.9	6.0	9.0
Norfolk	16.5	14.4	6.0	9.5
North Platte	17.8	14.0	6.0	10.0
Scottsbluff	18.5	15.5	6.0	10.0

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Texas

	Gasoline Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Dallas, Tex.	12.0	16.0	5.0	7.0
Fort Worth	13.0	17.0	5.0	8.0
Houston	13.5	17.5	5.0	7.0
San Antonio	13.0	17.5	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank wag.	Incl. tax	Kero. tank wag.
Halifax, N. S.	25.0	10.0	19.0
St. John, N. B.	25.0	10.0	19.0
Montreal, Que.	24.0	8.0	16.5
Toronto, Ont.	23.5	8.0	16.0
Hamilton, Ont.	23.5	8.0	16.0
Winnipeg, Man.	26.5	7.0	20.5
Brandon, Man.	28.0	7.0	22.9
Regina, Sask.	25.0	7.0	20.0
Saskatoon, Sask.	28.0	7.0	23.0
Edmonton, Alta.	25.9	7.0	20.0
Calgary, Alta.	23.0	7.0	18.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Tank-Wagon Changes

Continental Oil Co. March 27 reduced tank-wagon gasoline 1 cent in Muskogee; March 28, reduced tank-wagon gasoline 1 cent in Oklahoma City; dealer prices in both cities eliminated; April 10, reduced tank-wagon and dealer gasoline 2 cents in Butte; April 24, reduced tank-wagon and dealer gasoline 2½ cents in Helena.

Standard Oil Co. of Louisiana May 1 advanced tank-wagon kerosene 1 cent in New Orleans.

Crude-Oil Prices

Effective May 8 Sun Oil Co. posted $1.23 per barrel for crude in the Sun field in Starr County, Texas.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of May 14, 1940

The quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils. Octane ratings in Middle West, Mid-Continent, and Southwest are based on A.S.T.M. method of testing.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
72-74 octane (regular)	.04⅝	.04⅜
63-66 octane	.04⅛	.04¼
60 octane and below	.03¾	.03⅞
60-62 400 grades:		
72-74 octane (regular)	.04⅝	.04⅜
63-66 octane	.04⅛	.04¼
60 octane and below	.03¾	.03⅞

NORTH TEXAS—

U. S. Motor grades:		
72-74 octane (regular)	.04⅝	.04⅜
63-66 octane	.04⅛	.04¼
60 octane and below	.03¾	.03⅞
60-62 400	.03¾	.03⅞

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
72-74 octane (regular)	.05⅛	.05⅜
63-66 octane	.04⅝	.04⅞
60 octane and below	.04¼	.04⅛

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
72-74 octane (regular)		.04¾
60 octane and below		.04

CHICAGO (Based on Group 3)—

U. S. Motor grades:-		
72-74 octane (regular)	.04¾	.04⅞
63-66 octane	.04⅝	.04½
60 octane and below	.04	.04⅛
60-62 400 grades:		
72-74 octane (regular)	.04¾	.04⅞
63-66 octane	.04⅝	.04½
60 octane and below	.04	.04⅛

PENNSYLVANIA (Inland refineries)—

74-76 octane (regular)		.06
72-74 octane		.05¾
68-62 U. S. Motor	.04½	.05

CALIFORNIA (domestic movement)—

58-60 400, 65 oct. and higher	.07	.08
54-58 U. S. Motor	.05¾	.07

EAST COAST (domestic)—

U. S. Motor, 65 and above:		
*New York (Bayonne)	.06	.06¼
Philadelphia	.06	.06¼
Boston	.06¼	.06½
Baltimore	.06	.06¼
Charleston, S. C.	.06½	.06¾

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery ¼ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
72-74 octane	.04½	.04⅝
70-72 octane (leaded)	.04⅝	.04½
68-70 octane	.04¼	.04⅜
65-67 octane		.04¼

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.01¼
Grade 18-55	.01⅜	.01⅝

NORTH TEXAS—

Grade 26-70		.01¼
Grade 18-55		.01⅛

CALIFORNIA—

75-85 375-390	.05¾	.06

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.01⅝

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110-flash, 540-550 e.p.	.03⅞	.04
41-43 gr., 300-320 i.b.p., 110-125 flash, 500-520 e.p.	.03⅞	.04
46-48 gr., 210-230 i.b.p., 480-max., e.p.		.04⅛

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04
42-44	.04⅛

NORTH TEXAS—

41-43	.04

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.04	.04⅛

ARKANSAS (Ark. and N. La. del.)—

41-43	.04⅛

PENNSYLVANIA (Inland refineries)—

45	.05	.05½
46	.05½	.05¼
47	.05¼	.05⅝

CHICAGO (Based on Group 3)—

41-43	.04	.04⅛
42-44	.04⅛	.04¼

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04½	.05¾

NEW YORK (Bayonne, N. J.)—

41-43	.059	.06

***GULF COAST (domestic)—**

41-43	.04½

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil		.03¾
No. 1 prime white, 38-42	.03⅝	.03¾
No. 1 straw, 38-40	.03½	.03⅝
No. 2 straw, 32-36	.03⅜	.03½
No. 3 zero to 10, 28-32		.03¼

NORTH TEXAS—

No. 1 prime white, 38-42	.03⅝	.03¾
No. 1 straw, 38-40	.03½	.03⅝

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03	.03⅛

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36	.03⅛	.03½

CHICAGO (Based on Group 3)—

Range oil	.03¾	.03⅞
No. 1 prime white, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03⅜	.03½
No. 3, zero to 15, 28-32	.03⅛	.03⅜

NEW YORK (Bayonne, N. J.)—

*No. 1	.059	.060
*No. 2		.054
*No. 4		.054

*Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.72½	.77½
No. 6, 15 and above, 8-14	.45	.50

NORTH TEXAS—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.72½	.77½
No. 6, 15 and above, 8-14	.45	.50

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.65	.70

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 5, low pour point, 18-22	.75	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 10-16	.45	.55

PENNSYLVANIA (Inland refineries)—

36-40	.03⅞	.04⅛

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.15	1.25
24 plus diesel, per bbl.	1.15	1.25
24 plus diesel (bunkers)	1.20	1.35
12-16 (bunkers at tidewater)	.65	.75
10-16 (cargo lots)	.65	.75
12-17 (tank cars)	.60	.75
10-17 (high sulfur)	.50	.65
San Joaquin Valley:		
10-18 (tank cars)	.50	.70
24 plus diesel, per bbl.	1.15	1.25
San Francisco:		
24 plus diesel, per bbl.	1.35	1.40
24 plus diesel (bunkers)	1.40	1.50
10-16 (bunkers)	.80	.85

GULF COAST—

No. 2 fuel	.03½	.03¾
43-47 diesel	.03⅞	.04
48-52 diesel		.04
53-57 diesel	.04	.04¼
58-and-above diesel	.04¼	.04½
Bunker C (bulk cargoes)	.72	.80
Bunker C (bunkers)	.80	.90

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil	.053	.056
28-30 diesel (lighterage 6¼c per bbl.)		2.20
28-30 diesel (tank cars)	.05	.055
Bunker C (to ocean-going ships in N. Y. Harbor)		1.50
Industrial fuel (tank cars)	.035	.04

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

200-210 D, 10-25	.23
150-160 D, 0-10	.19
150-160 D, 10-25	.18½
100-110 D, 0-10	.18
100-110 D, 10-25	.17½
Steam refined:	
600 dark green (untreated)	.07½

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):	
10 pour point	.21½
15 pour point	.20½
25 pour point	.19
Steam refined:	
600	.11½
650	.14
600 flash	.15½
630 flash	.17

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:	
150-3	.10½
180-3	.11½
200-3	.12
250-3	.13
280-3	.14
280-4	.13½
300-3½	.14½
350-3½	.15
400-3½	.16
500-3½	.17
600-3½	.17½
100-2½ paraffin oil, 10-25	.06¾
10-25 pour point:	
200-3	.11½
250-3	.12½
280-3	.13½
280-4	.13

GULF COAST—

Pale oils:		
100-3	.05½	.05¾
200-3	.07¼	.07½
300-3	.07¾	.08
500-3½	.08½	.09
750-3½	.09	.09¼
1,200-3½	.09¾	.10
2,000-4	.10	.10¼
3,000-4	.12¼	.12½
Red oils:		
200-5-6	.07	.07¼
300-5-6	.07½	.07¾
500-5-6	.08¼	.08⅝
750	.08⅝	.09¼
1,200-5-6	.09¾	.09⅝

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2¼-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¾	.11½

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pour point		.23
10 pour point		.22
15 pour point		.21
25 pour point	.19½	.20
200 vis. at 70° F., 3 color:		
Zero pour point		.25½
10 pour point		.24½
15 pour point		.23½
25 pour point	.21½	.22

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.04¾	.05

PENNSYLVANIA (Inland refineries)—

122-124 (A.m.p.) w.c. scale		.04¾
124-126 (A.m.p.) w.c. scale		.04⅝

NEW YORK—

Wax in bags fully refined:		
125-127 (A.m.p.) wax		.0630
128-130 (A.m.p.) wax		.0640
130-132 (A.m.p.) wax		.0660
133-135 (A.m.p.) wax		.0680
135-137 (A.m.p.) wax		.0700
Crude scale:		
124-126 (A.m.p.) w.s.		.0475
124-126 (A.m.p.) y.s.		.0475
Petrolatum in barrels, carload lots:		
Dark green	.02625	.03125
Amber	.02875	.03375
Extra amber	.03000	.03625
Lily white	.05125	.05875
Snow white	.06125	.06875
Cream	.04125	.04875

Export Prices

GASOLINE

GULF COAST—

64-66 375	.04¼	.04⅜
61-63 390	.04¼	.04⅝
60-62 400	.04¼	.05⅛

LOS ANGELES—

U. S. Motor grades:		
Above 69 octane	.06¼	.06½
65-69 octane	.05⅝	.06¼
60-65 octane	.05½	.05⅝

KEROSENE

GULF COAST—

41-43 water white		.04½

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s. in bbl.)—

Cylinder stocks:		
600 S.R. unfiltered	.19	.20½
630 S.R. unfiltered	.20	.22½
600 flash, S.R.	.21	.23½
630 flash, S.R.	.26	.26½
Bright stock:		
Light, 25 pour point	.20	.30

NEUTRAL OIL

200-3 color		.31
150-3 color	.29	.30

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 A.m.p.		.06⅝
125-127 A.m.p.		.06⅝
128-130 A.m.p.		.07
133-135 A.m.p.		.07⅝
135-137 A.m.p.		.08¼
Crude scale:		
124-126 w.s.		.04⅝
124-126 y.s.		.04⅝

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